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INTERNET:
EDUCATION AND APPLICATION FOR THE KNOWLEDGE WARRIOR

A Research Paper

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Preface

As a net is made up of a series of ties, so everything in this world is connected by a series of ties. If anyone thinks that the mesh of a net is an independent, isolated thing, he is mistaken. It is called a net because it is made up of a series of interconnected meshes, and each mesh has its place and responsibility in relation to the other meshes.

—Buddha

This research project will introduce the Internet as an emerging communication tool that provides military professionals near real-time access to a globe full of information. With the explosion of technology in the computer and telecommunication industry, the future is now the present. Desert Shield/Storm showed the feasibility of information dominance and the value of electronic data manipulation in modern warfare—lessons we cannot ignore.

During Desert Shield/Storm, *minimize* was imposed for all message traffic into and out of the Gulf Region. *Minimize* meant only vital operational message traffic was available to the supporting commands, not routine administrative traffic. General Schwarzkopf had isolated the theater to prevent unauthorized or unwanted information and personnel from flowing to and from the Middle East to keep the amount of information manageable. This attempted to avoid the mistake of the Vietnam War where the total amount of incoming information was so overwhelming, Intelligence officers were often unable to extract information critical to their area of responsibility (AOR).[1]

Unfortunately, because non-operational information about the Gulf War's progress was scarce, *minimize* created enormous frustrations among some supporting commands.

[1] Clodfelter, Mark. *The Limits of Airpower*. (New York: The Free Press, 1989), 131.

For example, the commander of the United States Navy's Mine Warfare Command (COMINEWARCOM) was frustrated by his inability to quickly receive detailed status information on Navy progress and casualties through official channels. One of his primary sources of information ended up being news reports broadcast by the Cable News Network (CNN)[2]. CNN also became an indirect means of communication between the National Command Authority (NCA) and the Chairman of the Joint Chiefs of Staff, General Colin Powell, according to Bob Woodward in his book *The Commanders*. According to Woodward, the Secretary of Defense and the Chairman heard and interpreted reporters' interviews with the President during the very early stages of the Iraqi invasion into Kuwait as definitions of US national objectives,[3] and later refined them into military objectives for the Desert Shield/Storm operations.[4]

With *minimize* in effect, commanders were obtaining more expedient information on the progress of the war through indirect sources such as CNN. Intelligence officers agreed that the information transmitted by the news media was often received faster than messages through official channels.

However, the problem with indirect source information such as CNN, other network news reports, newspapers and magazines was its broad-brush approach to the subject. It provided information on what the media thought the general public wanted to know. Individuals at COMINEWARCOM would sit and watch news reports for hours

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[2] Coffman, Homer J. Instructor, Air Command and Staff College, Maxwell AFB, Alabama. Personal interviews, March, 1995.

[3] Woodward, Bob. *The Commanders*. (New York: Simon and Schuster, 1991), 259-261.

[4] Reynolds, Richard T. *Heart of the Storm: The Genesis of the Air Campaign Against Iraq*. (Maxwell Air Force Base, Alabama: Air University Press, 1995), 29.

searching for information they could use. This was not very efficient, nor was it an official system, but it was one of the best sources available. This pointed out the military necessity for a system that could provide information on demand.[5]

COMINEWARCOM's solution was to use one of the commercially available on-line services to track ship locations, casualties (with names), current news, and operations updates during the Gulf War. It was the same information provided by all the other news sources, but was available on demand with keyword search capability. And, since the data arrived in digital form, it allowed for easy data retrieval and manipulation.[6]

When COMINEWARCOM asked why that type of non-operational information was available from public on-line services, but was not flowing through official channels, he was told the Pentagon's Public Affairs Office, during its daily morning and afternoon press releases/conferences, was making the information available. Public Affairs designed these press releases/conferences for the media, who then determined what was newsworthy. The reason the Public Affairs Office did not provide the same information on current operations to military service members was it was not part of their responsibility, or cost effective to do so.[7]

Information is power. When one can control information available to a receiver, they have the power to influence—directly or indirectly. Unintentionally, the daily Public Affairs press releases provided useful non-operational information, but the dilemma was it

[5] Coffman.

[6] Ibid.

[7] Ibid.

was not readily available to operational or supporting commanders. Indirectly, CNN and on-line service providers became important means of receiving timely useful information.

As we move toward Toffler's Third Wave as a high tech-society, "A new breed of Knowledge Warriors has begun to emerge—intellectuals in and out of uniform dedicated to the idea that knowledge can win, or prevent, wars."[8] The Knowledge Warrior must have information on demand for future conflicts.[9] As computer and telecommunications technologies continue to expand, they are redefining the way we conduct wars. We should study the notion of Internet and its capabilities. It provides a Knowledge Warrior with exploitable information. It could very well prevent an adversary from dominating us through a similar exploitation of information.

The Internet research team would like to acknowledge the support for this project provided by Colonel John A. Warden, III, Commandant, Air Command and Staff College (ACSC), Maxwell Air Force Base, Montgomery Alabama. It was his vision that gave us the direction for immediate application of this information instrument of power, by teaching future commanders and campaign planners the significance and applicability of the Internet to knowledge warfare.

We would also like to acknowledge the outstanding contributions from members of the ACSC student body, faculty, and staff. These individuals volunteered their time to become the initial cadre of Internet instructors. Without their dedication, enthusiasm, and motivation, teaching Internet to the entire student body during the 1994-1995 academic year would have been an impossible task.

[8] Toffler, Alvin and Heidi. *War and Anti-War: Survival at the Dawn of the 21st Century.* (New York: Little, Brown, and Co., 1993), 139.

The Internet instructor volunteers were: Lt Col Dan Novak, Maj Jeff Hilt, Maj Susan Prado, Maj Phil Chansler, Maj Glenn Whicker, Maj Gray Brand, Maj Wayne Brasure, Maj Shelley Christian, Maj Teresa Tittle, Maj David Sonnier, Maj Mike Rampino, Maj George Kramlinger, LCDR Arlo Guthrie, Mr. James Overly, Maj Ed Vargas, Maj Matt Caffrey, Maj Jan Kinner, Capt Vicki Rast, and Maj Barry Coble.

[9] Ibid.

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Abstract

How can the professional military officer keep pace with the rapid information technology explosion and maintain an informational advantage over potential adversaries? The solution to this problem lies, in part, in educating officers on the capabilities of the Internet, regardless of their mission or unit affiliation.

This paper examines the key role the Internet must play in educating future military campaign planners. It describes how an Internet education program was developed and presented to the students of the Air Force's Air Command and Staff College (ACSC) during the 1994-1995 academic year, and presents a notional case study that relied on information extracted off the Internet to plan a military campaign.

The method of research included traditional approaches such as interviews, literature searches in libraries, student surveys, analysis and interpretation of survey results, as well as a non-traditional (for most military researchers) approach—using the tools of the Internet itself to conduct research.

The primary findings of the paper are the military should expand its Internet education, and military officers must, as part of their professional development, seek out this information. The lesson and teaching plans used to teach the Internet course to the ACSC students and the scenario developed for the case study are included in the appendices.

INTERNET:
EDUCATION AND APPLICATION FOR THE KNOWLEDGE WARRIOR

Chapter 1: Emergence of the Knowledge Warrior

Cyberspace is the land of knowledge, . . . And the exploration of that land can be a civilization's truest, highest calling.

—Newt Gingrich (Speaker, US House of Representatives)

Thesis

We in the military have a responsibility to our civilian leadership and to the American people to use every available means to deter potential adversaries and, failing that, to fight and win the nation's wars. We have always had the physical means, but significant advances in information technology are providing us the virtual means to accomplish the mission.

In their forward to the Department of the Air Force's white paper *Global Presence 1995,* the Secretary of the Air Force and the Air Force Chief of Staff examined the changes in national strategy from the *forward defense* of the Cold War era, to today's *forward presence*. They expanded the traditional image of *presence* beyond the use of air, land, and sea forces to include the "space forces and information-based capabilities" that can provide a "virtual" advantage.[1] They emphasized the fact ". . . information technologies lead us to consider the potential of operations in a four-dimensional, virtual battlespace. This battlespace is not defined in terms of traditional, centralized, geopolitical

boundaries, but in terms of a decentralized, global web of networks. As a result, we must examine new methods of characterizing the threat—including the use of technology-based analysis—and determine appropriate responses."[2]

The Internet is just such a technology-based system. It provides commanders, planners, and other military members electronic access to information about potential adversaries. On March 3, 1995, in an address to the US Senate, Senator Lieberman outlined the future battlefield. The full text of Senator Lieberman's remarks are at Appendix A. During this speech he expressed his concern:

> . . . to sound an alarm for my colleagues and my country about a clear and present danger to America's ability to defend itself against foreign enemies in the future.
>
> Now we are in the technology revolution and the pace is so furious that we would fight the gulf war today differently than we did just four years ago, simply because weapons—and related tactics—have changed so much.
>
> Nations that first perfect new weapons of war are best equipped to win wars. Those left behind the curve of change must scramble mightily to catch up—to close the gap—or else their vulnerability will be exploited.[3]

Military victories of tomorrow will require not only technology tools like the Internet but a complete understanding of how these tools are used. Victory will go to the actor that can gain information dominance to bolster the information instrument of power.

Definition

A commonly asked question is "What is the Internet?" The reason such a question gets asked so often is no easily defined answer neatly categorizes its structure and functions. We can think of the Internet in relation to its common protocols (rules and standards), as a physical collection of routers and circuits, as a set of shared resources, or

even as an attitude about interconnecting and intercommunications. Some common definitions given in the past include:

- a network of networks based on the TCP/IP protocols;
- a community of people who use and develop those networks; or
- a collection of resources that we can reach from those networks.

Today's Internet began as an experiment more than 20 years ago by the U.S. Department of Defense. It has since developed into a global resource connecting millions of users electronically. For this paper, we define the Internet as a network of networks that enhances global communications through electronic means, and the tools which make that communication possible.

Knowledge Warrior and Doctrine

Throughout history, warriors have fought battles with physical weapons of death and destruction. Today's warriors must be ready to expand the battlefield beyond the physical into the virtual realm—to become Knowledge Warriors. According to Paul Strassmann, a former Director of Defense Information in the Pentagon, "The history of warfare, is the history of doctrine. . . . We have a doctrine for landing on beaches, a doctrine for bombing, a doctrine for AirLand Battle. . . . What is missing. . . is doctrine for information."[4] As every intelligence officer knows, there are four stages to the information process: it must be found, processed, distributed, and protected. Finding information about an enemy ". . . now rivals weapons as the commodity most vital to success in war."[5] "A major factor contributing to the coalition victory in Operation Desert Storm was our commanders had a picture of the battlefield, and the enemy did not."[6] During Desert Storm, it was imperative that huge quantities of data was transmitted

expeditiously and without error, in support of the automated battlefield. By the end of the war, more than three thousand computers in the war zone were linked back to logistics, intelligence, and communications centers in the United States. "Knowledge, in short, is now the central resource of destructively, just as it is the central resource of productivity."[7]

The ability for armies of the future to process huge quantities of data will be challenging. The military's ability to obtain information from computer systems and sensors will become part of the operational art of war, and the setup of complex computer systems for the distribution, processing, exploitation, and manipulation of electronic data will be the deciding factor in who will win the next war. Establishing and maintaining communications computer networks, as well as defensive and offensive computer systems will determine who has the greatest advantage on the field of combat. The primary advantage will be linking electronic networks to facilitate information distribution, which in turn, will help reduce the fog of war.

Even if we find and suitably process information, knowledge is useless if the right people never receive the information, or receive it too late. Therefore, the military needs various ways to distribute information. According to Toffler, plans are being developed to establish a global military communication network.[8] The commercial application of space and satellite technology has helped feed the need for global connectivity. By linking these networks both militarily and commercially, we are creating international dependencies—alliances linked through computer networks—as well as redundancy for military applications. Internet provides us a legion of data coalitions. These coalitions are forming for economic reasons, but will have significant military implications in the future.

Nevertheless, no electronic information is without its weaknesses. The ability to protect one's own electronic assets against an enemy's attack will be just as important as protecting the intelligence information received about the enemy. Information or knowledge may provide the edge in winning wars, but technology dependency can also make the technology-dependent units more open to exploitation. Without adequate information protection, the aggressor can readily become the object of aggression.

What we already see, therefore, is the progression of military thinking beyond its early conceptions of electronic warfare, beyond the current definitions of command and control warfare, and even beyond the more general notion of information warfare. For decades to come, we will need to assign many of the best military minds the task of further defining the components of knowledge warfare, identifying their complex interrelationships, and building the "knowledge models" that yield strategic options. It is from these models "knowledge strategies" will be born.[9]

Technology and the Knowledge Warrior

To understand how technology applies to future warriors, we must study how technology affected their past. According to Andrew Krepinevich, a Military-Technical Revolution does not occur until the military innovatively adapts new technologies into a military system's organization and operation.[10] Krepinevich further explains that what is revolutionary is not the speed at which the change takes place, but rather the magnitude of the change itself. History has shown how national economies have driven technology, and how technology and society have driven military application and power projection. To illustrate this point, we need to address the theories of Toffler and Mahan.

Toffler's Three Wave theory views the evolution of societies as waves of change in the evolution of global economic and societal development. He defines a First Wave society as agrarian, a Second Wave as industrial, and a Third Wave society as an informational society, or one having a highly developed technology dependence. As a society matures so does its technology, and by following these waves, one can easily assert how a society's development mandates its tools of war.

The First Wave, agrarian society, reflects economic power in the amount of resources that can be exploited from the land. The society is considered very primitive and requires most of the available population to work to support agriculture or mineral extraction. It was during this period in historical development permanent settlements and other social and political alliances were formed to protect agriculture resources from bandits, raiding parties and casual violence. War and casualties were usually limited due to scarce resources, low technology weapons, and the labor required to maintain the farming. Many First Wave societies still exist in the world today, but being First Wave does not assume the nation is poor. For instance, several modern-day nations are thriving on the tremendous revenue brought in by their petroleum markets. In return, they have obtained large volumes of Second Wave nations' productivity to improve their standard of living.[11]

The initial Second Wave societies, the industrial nations, were born during the industrial revolution. Industrial might and production washed over agrarian-based economies. Mobilization of a nation's resources and economy for conducting war created massive armies and massive causalities. This wave produced massive wars of attrition, what Toffler referred to as "Death on the Assembly Line."[12] Recent examples of wars of

production and attrition are WWI and WWII. Allocation of industrial resources was the critical element for supporting and winning the war. In the recent Gulf War, Iraq attempted to wage a Second Wave type of war against a Third Wave nation.[13]

The Third Wave, or informational society, has an economic base that is dependent upon knowledge-implanted products. Industrial production is important, but not as significant as the knowledge required to develop and apply the right tool or equipment for the job. War is no longer dependent upon large standing armies or wars of attrition. "Today, one F-111, flying one sortie and dropping one bomb, can accomplish what it took B-17's flying 4,500 sorties and dropping 9,000 bombs to do during WWII."[14] National power wields monetary constraints and diplomacy over conflict and suffering. Emerging non-lethal weapons are having as great a strategic impact on planning tomorrow's battlefield as the nuclear weapon has had for the past five decades. Knowledge Warriors are born as military fusionists. Innovation, technology, and education are their tools of war.

Historically, the sea has been a primary means for national economic growth. According to Mahan:

> The first and most obvious light in which the sea presents itself from the political and social point of view is that of a great highway; or better, perhaps, of a wide common, over which men may pass in all directions, but on which some well-worn paths show that controlling reasons have led them to choose certain lines of travel rather than others. These lines of travel are called trade routes; and the reasons which have determined them are to be sought in the history of the world.[15]

Mahan contended it was seapower's role in history that resulted in a nation's prosperity. The historical applications and analogies Mahan used to justify his theory could just as readily be applied to the Internet, for it also presents itself from a political and a social perspective as a great highway—an information super highway—where we call the lines of travel, communications networks, and those who travel it. Knowledge Warriors.

According to Mahan, navies existed for the protection of commerce. A nation's prosperity depended upon commerce and the ability of its navy to protect it. Dependence on commerce required secured seaports—which increased colonization and added markets. Because of his influence, nations started the first industrial arms race. For example, in 1906 Britain commissioned the H.M.S. Dreadnought. It was a technological marvel and the most powerful weapon of war the world had ever seen. This caused the Germans to recognize their own vulnerability and to start construction on their own Dreadnoughts. The English, fearing a Dreadnought gap with the Germans, built 15 more Dreadnought-class ships in six years, and started an arms race that has spread throughout the world.[16]

As nations progressed technically and economically, so did the lethality of their weapons. Toffler's Three Wave society theory supports the thesis of a parallel between a

nation's economy and its ability to wage war. Mahan's idea for the military instrument of power to protect commerce was the fundamental reason for the navy's existence and became part of America's doctrine. Brigadier General William Mitchell dared to resist that doctrine and maintained the vision that airpower would replace seapower as the primary guardian of national wealth and power. However, in today's Third Wave society, the Knowledge Warrior must develop and use evolving telecommunications technology, integrated into the nation's weapon systems, to protect commerce and electronic lines of communication—to defend the nation's wealth and power.

Chapter 2: Paradigm Shift in Research

A man says to his computer, 'Do you compute that you will ever think like a human being?' After assorted bleeps and blinks, the answer appeared on the monitor, 'That reminds me of a story.'

—Peter Schwartz, *The Art of the Long View*

Introduction

Classic research has historically been defined as a search through previously compiled data, or the development and testing of an idea to establish the validity of a proposed thesis. This method of research usually required repetitive trips to libraries and research centers, as well as extensive amounts of time devoted to telephone, written, and personal communication with groups and subject matter experts to compile data for further analysis. With the coming of the Internet, a paradigm shift in research methodology has occurred—researchers now have almost instantaneous access to thousands of research and academic computer systems around the globe, and a worldwide audience for questions and surveys.

Given the scope of resources currently available on-line, the temptation might be to abandon the classic method to concentrate, instead, on the faster electronic search and retrieval capabilities the Internet offers. During the course of our project, experience has shown the systems should be used in a complementary, rather than a mutually exclusive manner, for each has its individual strengths and weaknesses. The remainder of this chapter will discuss some of the disadvantages and advantages for each of the methods.

Disadvantages of Research Methods

The classic method can yield considerable amounts of information if one is able to locate the right material and the right individuals. This method has the inherent problem of being very time consuming with no guarantee for success. The selection of materials is often hindered by the items the libraries contain, or deem appropriate for their shelves. The data in this type of material is usually dated by the time it is published due to the time associated with researching, writing, publishing, and finally distributing the books and articles. In addition, the material may be narrow in scope. It may not be all-inclusive, or may cover only a small portion of the subject at hand, while more comprehensive articles may lack the desired depth of details, making it not much more than a broad topic overview. Library and research center operating hours put additional restrictions on the ability to search for material.

Despite the fact the Internet is more than 20 years old, it is not yet mature nor robust enough for most researchers. A major disadvantage of the Internet is the availability of the sourced material for future reference. Unlike a library that keeps books and articles indefinitely on diverse historical media, the individual public archive or research site on the Internet may not retain all of today's information for future accesses. The person who controls the data on a particular computer may go off-line, or may download the information to disks or tapes. He or she may even delete the information in its entirety to free valuable computer storage, thus preventing its retrieval at a later date. In addition, the Internet system is not an all-inclusive set of computer files. It lacks many old documents. Some information may never be accessible over the Internet as that would require electronically copying and storing every single document that exists to achieve a

completely comprehensive system. However, despite these disadvantages, there are advantages to both of these research methods.

Advantages of Research Methods

Classic research is just that—classic. It's built upon tried and true methods of physically being in the library with one's hands on the actual source material, brainstorming with groups of contemporaries, and conducting interviews with a subject matter experts, eye-to-eye. It's a proven, successful way to gather information.

Searching the Internet substitutes electronic leaps around the world's computers for physical walks around the library shelves. It provides means for searching thousands of data storage locations, and access to unimaginable amounts of information, almost instantaneously, from the familiarity of an office or home computer. The Internet allows the researcher to peruse hundreds of files on thousands of computers to find information on the desired topic, and to pose unlimited questions to a worldwide audience. Even more important are the dynamics of the Internet. Each month dozens of new computers make their resources available to Internet searchers—it's an ever-growing source of material.

Much information is now electronically stored and made public well before the paper copy is published. Compare this instantaneous data retrieval to that of classic research where, by the time late-breaking information is published, it is dated. A further complement to the method of researching through electronic means is the use of electronic mail (e-mail) as a non-traditional way to conduct interviews. Since they can be conducted on-line, saving valuable time and travel resources, this method can lead to a much more

thorough interview process by encouraging continuous dialogue between interviewer and interviewee.

Summary

The classic research method has advantages when searching for books and materials not usually considered time-sensitive, while the tremendous advantage of the Internet is its almost unlimited access to a continuously expanding set of information, unconstrained by the geographic location of either the researcher or the material. One method should not replace the other, they should be complements. For example, consider this uniform resource locator (type of Internet address): **http://utkvx1.utk.edu/~xurs/sci/email_sci.html**. It's the on-line address for a university computer in China that provides the e-mail addresses for dozens of Chinese scientists. Or **http://ftp.geog.ucl.ac.be/~patrick/regions/chine/Ecnregions.html**, is the address of a university in Belgium that provides information on the provinces, population, area, universities, schematic maps, etc. of the People's Republic of China. Using addresses such as these found on the Internet, ACSC students extracted current information on Chinese politics, environment, culture, leadership, economics, and technology in order to produce a country analysis in preparation for developing a non-traditional campaign plan. Although the students were working on a notional scenario, the type of information located was surprising in its level of detail. And while they were able to find almost everything they needed on-line to complete the scenario, the Air University Library at Maxwell Air Force Base, Alabama was available as an additional research source if needed.

The lesson of this chapter is that both the classic and Internet-based research methods have their limitations and advantages. Finding information will come from exploiting the advantages of each to produce the most efficient and comprehensive research tools available.

Chapter 3: Educating the Knowledge Warrior: Warping to the Present

I want this *year's ACSC class to get as much of this [Internet training] as possible!*

—Col John A. Warden III, Commandant, ACSC

Introduction

As a rapidly advancing technology, the Internet offers essential tools for developing today's Knowledge Warriors. It provides information on demand via thousands of networks—a boundless source of historic and current information. The challenge for the Knowledge Warrior is to find that information quickly and to act upon it. The ACSC Commandant, Colonel John Warden, challenged us, as a research group, to educate the current class of Knowledge Warriors to the power of the Internet. This chapter documents the evolution of our project—from paper into practice. The final products were this paper, and a cadre of students and faculty educated on the power of the Internet.

History of Research Project

The notion of the Knowledge Warrior and the Internet generated interest in our initial research proposal. We originally called the project *Internet for the Campaign Planner* because the research team believed the Internet's capabilities would enhance a warfighter's (campaign planner's) effectiveness. Initial discussions centered upon many of the Internet's capabilities and how the advantages provided by on-line searches and retrievals would significantly enhance campaign planning and execution. Our initial goal

was to produce a user-friendly guide for the military member to introduce him or her to the Internet's capabilities.

Upon further research, it quickly became obvious our idea had already been acted upon by dozens of individuals. Internet sites, tools, and capabilities were changing daily, and commercial applications for the technology were, and still are, expanding at a tremendous rate. Internet "How-To" books were flooding the bookstores, so our proposal to develop a similar product would have been redundant and added little value as a research contribution. Consequently, the team regrouped and refocused on applications specific to the military professional—in particular, the Internet's value as a resource for the campaign planner or military staffer in order to locate and incorporate contextual and operational art elements into the campaign planning process.

Because most of the research team members had limited familiarity with the Internet, much research and independent study was required to achieve proficiency with its tools and applications. The more we learned about the Internet, the more we were convinced there *must* be ACSC students and faculty who would use its information resources to enhance their ongoing research projects and classroom instruction if they were familiar with the system's capabilities and benefits. Consequently, one of the team members sent an e-mail message to every student and faculty member to determine whether sufficient interest existed for us to offer a series of optional briefings on the use of the Internet. The response was amazing—more than 200 people answered positively on the first day. By the third day the number had grown to over 400. Taking that as a strong positive sign, members of the team developed and presented a series of introductory

lectures which were not part of the ACSC curriculum, nor part of the research team's project.

Lectures in Wood

The first lecture introduced the Internet as an intermeshed network of thousands of worldwide networks with no central management and operated mainly by consensual anarchy. Several examples of video images which had been downloaded off the Internet were displayed followed by a brief history tracking the Internet's evolution from the early academia-based ARPAnet (Advanced Research Projects Agency network) of the 1970s, through the business-based local area networks of the early 1980s, to the general public's awareness of the Internet's existence during the personal computer explosion of the late 1980s. That brought us to the 1990s where the public's need for information and global connectivity resulted in an explosion of Internet sites and applications. Moving from the macro to the micro, the briefer then demonstrated how individuals could access the net for professional or personal use—whether developing resume databases, tracking the current weather in another theater, reviewing legislative bills, collecting aviation information, or booking reservations at Disneyland.

He explained how the power to be heard is the new power of the information age—it reflects the flattening of traditional organizational chains of communication. An example was shown using the e-mail address of the President of the United States (president@whitehouse.gov) and explaining how anyone can send the President an electronic message. Never before has the average person had such potential for immediate contact with government officials.

The briefer then introduced e-mail, FTP (File Transfer Protocol), Gopher, WAIS (Wide Area Information Server), Telnet, newsgroups and mailing lists as the tools they would need to communicate with computers around the globe, with the assurance more detailed instruction on each subject would be presented in future lectures.

The briefing ended with a picture of a futuristic looking spaceship that had been downloaded off the Internet. "Warping into the Future" was the slide's original caption, but after much discussion we decided "Warping into the Present" was more fitting—ACSC students would be catching up with information technology, not warping ahead.

We used the same slide a couple weeks later to introduce the second lecture, where making the physical connection to the Internet and the different uses of e-mail were introduced. The concept of Internet service providers versus on-line access providers was addressed. The use of a dial-up telephone connection versus ACSC's local area network was also explained. The briefing concluded with a discussion on different uses for e-mail (sending and receiving messages and files, searching for information, etc.).

Immediately following the second lecture, the enormous demand by ACSC students and faculty for more information about the Internet led to the addition of an Internet Bulletin Board on the school's local area network bulletin board system (BBS). The slides for the presentation were added to the BBS along with some *how-to* texts for specific tasks, but still the students were not satisfied. More than four hundred people were attending these lectures and they wanted more. They wanted hands-on training so they could start browsing the net to see what was out there and evaluate its functionality for themselves.

The Commandant Expands the Project

We gave the next briefing to the Commandant of ACSC in mid-November 1994. It contained information from the two introductory lectures, an overview of our research project, and recommendations for incorporating Internet training into the 1996 academic year's curriculum. After listening to the presentation and asking detailed on the Internet, the Commandant said the project was too broad and the idea was too important to wait until next year to implement. He felt current students—future military leaders—should not be denied this vital knowledge, so he directed we include it in the current year's curriculum. That direction multiplied the challenge facing the research team—the emphasis had just gone from developing our research project, to developing research *and* curriculum for the 1995 academic year.

Internet on an Application Level

The shift to include curriculum development caused us to rework the research portion of the project. By thinking of the students as campaign planners, we could test our thesis of the Internet as a viable and valuable tool for the Knowledge Warrior. We decided to develop a scenario that would require the students, as campaign planners, to satisfy a real-world scenario using the Internet as the primary source of information retrieval.

The research team's students developed a notional scenario and conducted an operational test using the Internet to test its feasibility. Test results proved the concept feasible, so the team's faculty members gave the scenario to their eight seminars during the Theater Air Campaign Studies (TACS) course. Instead of conducting ACSC's non-

traditional use of airpower exercise, the selected seminars received objectives and taskings relevant only to their scenario. Because the Internet training and the TACS courses were being taught concurrently, the eight seminars were allowed to work with each other to develop their campaign plans. Although this paper was submitted for evaluation prior to the seminars completing their campaign plan, the type of contextual and operational art element information they had already retrieved for the scenario validated the concept of the Internet as a viable planning tool.

Curriculum Development

Apart from the application of our thesis, our curriculum goal was to make the students aware of the resources available and give them enough information to immediately start exploring their new electronic world. We developed a preliminary curriculum of five separate lessons with the expectation each lesson would be further refined during the initial instructor cadre training. The lessons were basic and dealt with minimum skills needed to understand the use of web browsers, e-mail, file transfer protocol (FTP), newsgroups, and Telnet, as well as a comprehension-level awareness of how the Internet is organized and operated.

Training the Instructor Cadre

Before we could start to teach Internet to over 500 students, we had to train a cadre of volunteer student and faculty instructors to help us provide the instruction. Thirty-two volunteers received 20 hours of intense hands-on instruction over a three week period in ACSC's computer lab on all items expected to be covered during the curriculum. The surveys they completed at course completion showed 20 hours was sufficient time to

make them comfortable with the basic tools of the Internet, but almost all of them admitted they spent many additional hours working with the Internet outside of the lab in order to feel comfortable teaching the material to the rest of the students.

Instruction of ACSC Students

In order to be useful this academic year, each of the 44 seminars were required to receive all five lessons within a seven-week time frame—without interfering with the established ACSC schedule. Working with the ACSC scheduling office, we designated the lessons IT (Information Technology) 501 through IT505, generated an instruction schedule, and made instructor assignments to cover all lessons. In addition, we developed and tested a comprehensive 10-page checklist to facilitate loading and operational testing of the software required to access the Internet on each seminar computer. We also developed lesson plans, teaching plans, and student handouts for the individual lessons. The instruction schedule is at Appendix B, lesson plans are at Appendix C, teaching plans are at Appendix D, and software installation procedures are at Appendix E.

The first lesson, IT501, was presented in ACSC's Wood auditorium to the entire student body. It introduced the overall course objectives and presented an overview of subsequent lessons. The remaining lessons were taught in individual seminar rooms to allow hands-on demonstrations by instructors to students. IT502 covered the nature of the World Wide Web (WWW) and the use of Netscape Navigator as a browsing tool. IT503 focused on e-mail and newsgroups, while IT504 concentrated on Telnet (remote log-in) and File Transfer Protocol (FTP). The last lesson, IT505, provided a demonstration of search tools and their applicability to the students.

In less than four months our research group completely changed project focus and direction. We developed a curriculum, presented the curriculum to the entire ACSC student body, developed a scenario to provide an operational test of our thesis, and through positive intermediate results from the selected seminars proved our thesis that the Internet is a valuable tool for military professionals, with operational significance.

Chapter 4: Knowledge Warrior Application: A Case Study

The only 'known' about the next war, wherever and whatever it might be, is that nobody knows precisely what it will be like.

—AFM 1-1, Volume II, 1992

Introduction

How good a tool is the Internet to the campaign planner? Our goal was to demonstrate the Internet's effectiveness by employing it in the Theater Air Campaign Studies portion of the ACSC curriculum. The objectives in doing this were: 1) through research, to determine how much information is available to the campaign planner; 2) to develop a scenario for eight selected seminars to perform area of responsibility (AOR) research; and 3) to develop a notional information solution to the scenario to assist instructors and students in the eight seminars.

This chapter will describe the evolution of the development of the scenario for the case study and the detailed planning on the Hong Kong/People's Republic of China scenario. Research findings on a notional information solution for AOR research will be presented as well as the findings and conclusions of the case study.

Evolution

Student team members initially collected data via the Internet on three countries (Sudan, Panama, and Hong Kong) to provide alternate areas of concentration for faculty and students participating in the exercise. These three countries offered a wide range of geographical locations, political environments, and cultural conditions.

During this research phase, members of the research team met with the TACS course director and other faculty member in ACSC/DEC to determine an appropriate application within the ACSC course curriculum. They recommended we develop a non-traditional application of force scenario for use during the Theater Air Campaign Studies course. This was based on the need for parity with other non-traditional air campaign exercises that would be conducted simultaneously in the ACSC curriculum.

In that light we selected Hong Kong for the Internet case study as we believed no exercise participants would assume Hong Kong would be the subject of any real-world aggression. During the initial research phase on the three countries, the student team members obtained a significant amount of information applicable to Hong Kong, gained valuable experience on how to search the Internet, and acquired a feel for the level of information available. While attempting to be politically sensitive, as research and exercise preparation began to take shape, there was an obvious change in the focus of our scenario. Hong Kong remained a focal point, the United Kingdom became an additional actor, but possible aggression in the scenario centered on the People's Republic of China.

This refocusing brought current day relevance into the exercise, as the scenario centered around Hong Kong's real-world transition from the caretaker responsibility of the United Kingdom to full control by the People's Republic of China in July 1997.[17]

Development of Scenario

Once we selected Hong Kong, the detailed development followed a pattern of brainstorming, some classic research (searching the Air University Library) and some

non-traditional (using Internet search tools to search the Internet), followed by synthesis and writing.

Our objective, once again, was to develop a *non-traditional* scenario. We did not want to develop something that looked like previous scenarios or military operations (such as Desert Storm or El Dorado Canyon). We wanted to a scenario that would test the students' ability to find information useful in identifying centers of gravity. The reason for this was to keep students focused on information, political, and economic instruments of power (IOPs) during the Theater Air Campaign Studies portion of the ACSC curriculum, while the curriculum emphasized the application of the military IOP.

At the heart of any campaign planning scenario is an underlying dispute or conflict. After some research we decided the July 1997 transfer of sovereignty of Hong Kong from the United Kingdom (UK) to the People's Republic of China (PRC) provided a good source of potential conflict. The heightened real-world trade tensions between the PRC and the United States in February 1995 directed us to a scenario in which the PRC would *hypothetically* attempt to assume full economic control of Hong Kong in 1997 rather than honor the UK-PRC agreement to wait until the year 2047.[18] The research team brainstormed to develop the details of the scenario in which a more conservative government comes to power in the PRC, and abrogates the UK-PRC agreement on Hong Kong, forcing a crisis. The detailed scenario is in Appendix F.

AOR Assessment Research

Once the scenario was selected, we used the resources of the Internet to fill in the information gaps. Each research member developed his or her own search criteria and methods for attacking the problem. Because the Internet does not have a central structure or information repository, depth and breadth of located resources were dependent upon the tenacity of the individual doing the searching. The initial challenge was to learn how to use the available search tools, then to correctly define and refine the search parameters necessary to return usable information.

Initial search development usually started with the Netscape Navigator World Wide Web (WWW) browser software that was loaded on each seminar's computer. Using Netscape's list of available hyper-linked search engines, we performed word and phrase searches using key words such as *China, Hong Kong, Chinese Military*, and *International Issues*. These searches returned potential sites ("hits") for further exploration to include WWW sites, Gopher, Archie, and Wide Area Information (WAIS) servers, newsgroups, mailing lists, electronic mail addresses, and sites available for anonymous file transfer. By searching the returned "hits," we found additional information sources and relevant documents.

Searches were subsequently broken down by main categories of information on the Internet such as government, international organization, economics, etc. These resulted in a much wider variety of returned sites. Since the focus of the searches was to find information germane to the Theater Air Campaign Process model's contextual and operational art elements,[19] we used each of the model's elements as part of the search criterion. This method helped provide focus and eliminated random searching.

When sites were visited and information found, a real-time decision was made to its applicability to the scenario. Based on the evaluation of information and locations found, the researchers started saving the locations of good information sites (using Netscape's bookmark capability) by uniform resource locator (URL). Appendix G provides a notional information and location solution that was developed during this research and which is applicable to the scenario.

Because new sites are constantly added to the Internet, the decision on when to stop looking for information was at the discretion of the researcher and was usually a function of time available and the frustration level of the Internet searcher.

Research Findings and Observations

Although the Internet has been in operation for almost two decades, until recently its resources were of interest mainly to scientific and academic research personnel. Its explosive growth during the past few years, however, has opened thousands of public archive and information sites that are encouraging public use. Consequently, current and historic information on untold numbers of subjects can now be searched for and found electronically from the convenience of one's home or office.

Despite its wealth of information, our experience has shown the Internet and its associated capabilities should not be looked at as the sole research source, but rather one of many research locations and tools currently available to the Knowledge Warrior. A time-expended/benefit approach should be considered when looking for something on the net versus using more traditional research means. For example, one team member found the entire text of the People's Republic of China-United Kingdom agreement in a 15

minute search at the Air University Library after having spent nearly four hours the previous night unsuccessfully searching the Internet for the same document; while another member unsuccessfully searched the Internet for information on SEATO, only to find what she needed on her personal CD-ROM encyclopedia.

Experience showed that being able to properly define the search parameters was crucial to producing good search results. If the search parameters were too narrow, results were thin. If the parameters are too wide, it was a Herculean task to separate the wheat from the chaff. For example, a search for *China law* returned some valuable sites with good information on contextual elements, whereas a search for *Hong Kong* returned, among other insignificant information, the location of a German-language cowboy story. Results of this nature were products of the search software's ability to do substring searches using portions of the requested parameters (e.g. a search for files with *Hong* in the title turned up a site in France that had Cheech and Chong sound files for the Macintosh computer). We expect the continuing work on the Internet to standardize database directories and file name formats will improve search returns.

In addition to properly defining search parameters, the time of day and the amount of activity on the Internet during the search will also have significant impacts on the Internet's usefulness to the Knowledge Warrior. Most public access sites are heavily used during the day by subscribed research and educational institutions. This requires the sites to limit the number of general public access users they will accommodate. It often required diligent repeated accesses—or late night searches—back to the more popular sites to gain access.

The last observation on using the Internet as a resource is related to the technology itself. Technical limitations such as limited server access, low modem rates, slow data transfer, and incorrect URLs often resulted in additional frustrations during the search process. At this point in its evolution, problems of this nature should be expected. However, given its growing value to the world community, we expect significant continued improvements in the above-mentioned areas.

The notional information solution for AOR information on Hong Kong is found in Appendix G. We do not provide copies of the information, but do provide the Internet addresses (URLs) to the sites that hold the information. The spirit of the new approach to research is to collect the information as you need it, and this is what we did. We found enough information to convince us the Internet contains the type information necessary to conduct an effective AOR assessment, and provide the campaign planner the basic information upon which to begin the iterative campaign planning process.

Summary

We began this chapter by raising the question, *How good a tool is the Internet to the campaign planner*? In order to answer this question, we developed a realistic scenario on which to do an AOR analysis. While traditional information sources (such as a library or intelligence shop) may quickly provide detailed (and classified) information, they require the individual to visit the library or the intelligence shop. With the increasing bandwidth on commercially available communications systems, future campaign planners in austere locations will be able to use the Internet to collect basic information for an AOR assessment, providing a springboard for the campaign planning process.

Chapter 5: Conclusions and Consequences

The Air Force should organize to make full, effective, and coordinated use of it total force.

—AFM 1-1, Volume II, 1992

Results So Far

The current status of the Internet is very much like aviation in 1910. Visionaries in 1910 could look at those fabric and wood contraptions, held together by baling wire, and see that airpower would change not only the balance of power in war but the very nature of humanity. The realists of the 1910 could easily declare that those flying toys could not even take-off carrying a bomb powerful enough to pose a threat to a modern military, much less be able to fly far enough to drop that bomb on a determined enemy's fielded forces. The concept of paralyzing an industrial base could not even be discussed. In 1995, realists can easily declare that those web-browser video-games do not present a military option or even a minor threat to a modern military much less provide the ability to affect the enemy's leadership. The visionaries see the tidal wave of information breaking over the horizon and believe it will not only change the balance of power in war, but the very nature of humanity.

The concept of the information age is reflected in the Internet. The military is not alone in its interest to do things better. Just like aviation in the 1920's and 1930's, the commercial world is very interested in the Internet. They will develop ways to make it profitable for their operations. Our adversaries are interested in it as well. The Wright brothers may have flown the first airplane in 1903, but American pilots during WWI flew

European designed and built aircraft, because the United States had fallen behind the Europeans in aviation technology. Falling behind in a Third Wave world can mean falling from status as a super-power—militarily, economically, and politically.

Since we began Internet training at ACSC, things have changed. During one ACSC class on International Organizations, one student questioned the accuracy of information the instructor had on the International Committee of the Red Cross (ICRC) and downloaded information from the ICRC's Internet site home page via the ACSC connection to the Internet while the class continued. After accessing real-time information, the student made additions to the class discussion that had not been in any of the reading material, nor in the instructor's teaching plan. The lesson plan was out of date because it had been prepared over three months earlier, whereas the information on the ICRC home page on the Internet was updated almost daily. The Internet often allows reference to the primary source instead of relying on secondary information.

Many students have embraced the capabilities of the Internet. One student who was initially opposed to the time spent on the Internet training found a way to improve his required in-class briefing. He downloaded sound files and incorporated them with graphics from another site in order to enhance his presentation. His seminar became believers in the power of the Internet. Another student was able to download over 100 pages of printed information to support his team's research project in a matter of seconds. Internet has also proven itself to be a force multiplier. Some students have commented their time spent conducting outside research for their master's courses was reduced 60% to 70% because of information they were able to find on the Internet.

Unfortunately, due to the timing of this research paper's completion, the results of the Hong Kong exercise were not available. We are optimistic the results will serve as a positive basis for future ACSC exercises.

ACSC now has its own home page on the Internet. Linked to it is the Knowledge Warrior's home page (see Appendix H), which has real-time information support for the air campaign planner. In addition, a new department will be formed for the purpose of incorporating Internet into future education at ACSC. This department will focus on developing a virtual desk reference with e-mail, voice-mail, video conferencing, collaboration and research tools to include joint research with other military agencies, and interactive computer simulations and exercises. ACSC is at the leading edge of the military application of information technology.

Survey Results

Our redirection by the Commandant from formal research to providing Internet training to the ACSC class of 1995, was a task not easily appreciated or evaluated in terms of traditional research. In the Fall of 1995, there were but a few ACSC students familiar with the Internet, and only a handful who fully comprehended the Internet's capabilities. Walking down the ACSC corridors in April 1995, however, one will find several seminar computers tuned in to this newly discovered tool of the Knowledge Warrior.

In an effort to capture the impact of this research project, our team developed a survey with ACSC research project evaluation issues in mind. To this end, our survey captures the value and quality of this particular research project as viewed from the student perspective. Ultimately, the students should indicate what, if any, contribution this

project made to their knowledge base. After completing Internet training, the cadre of Internet instructors administered the student survey. A sample of the survey is at Appendix I; the results from the survey are summarized in Appendix J.

With an 80% survey return rate, we are confident the survey data supports the following conclusions: First, fully 92% of ACSC students felt their knowledge base was increased. Also, 90% saw the value and importance of this new capability, and appreciated the benefit of Internet training. Second, while the majority of students adapted to the limitations of classroom and technical capabilities, written comments clearly indicate a need for each student to have individual *hands on* access to Internet—at least during training sessions. Overwhelmingly, the students believe they should have received Internet and basic computer training at the beginning of the academic year.

Specific data on each survey question follows:

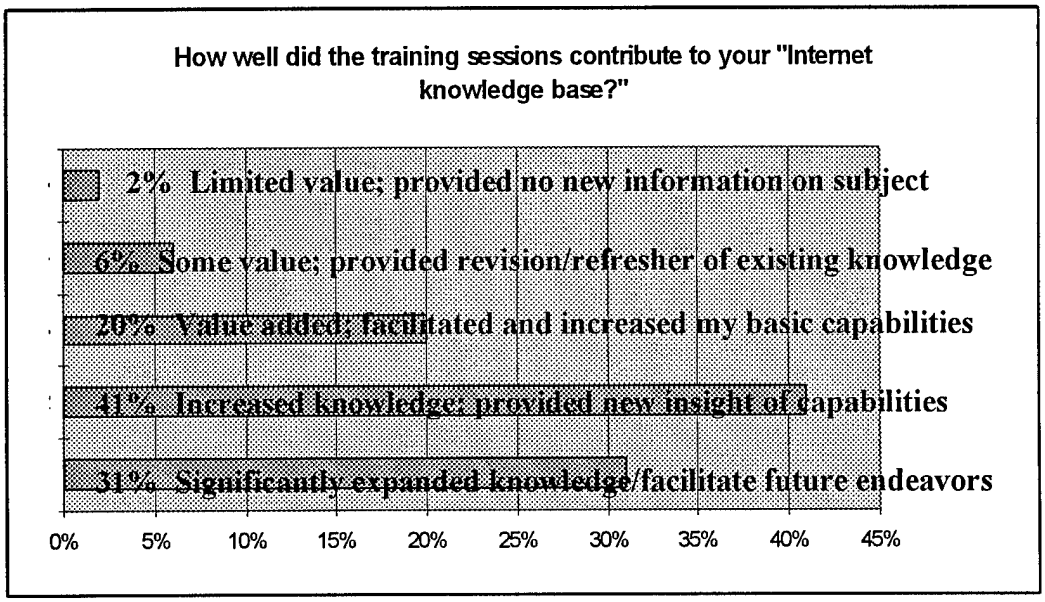

Figure 1: Results of Survey Question 1

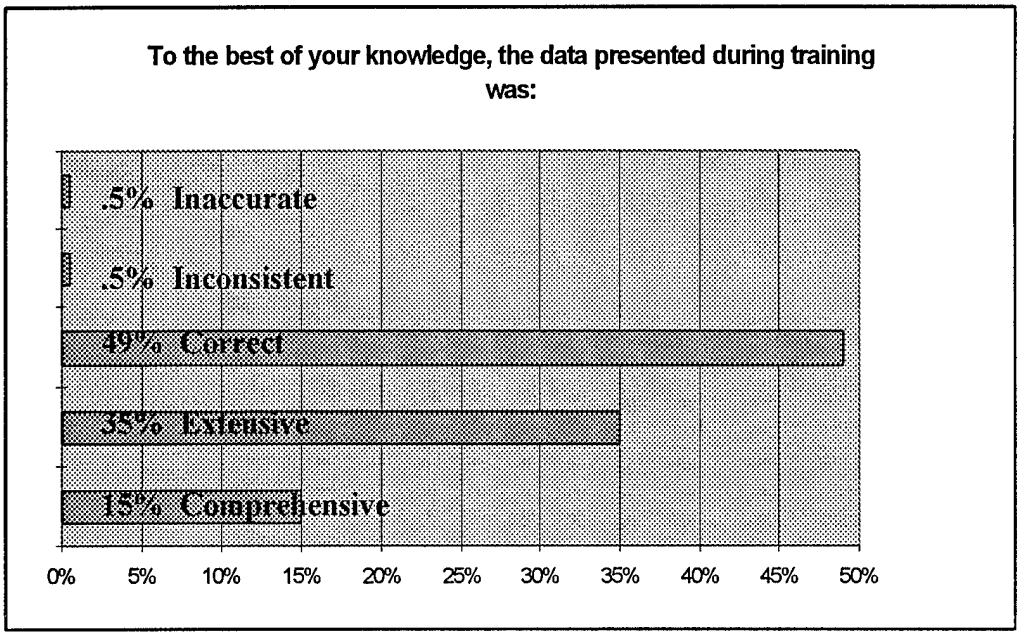

Figure 2: Results of Survey Question 2

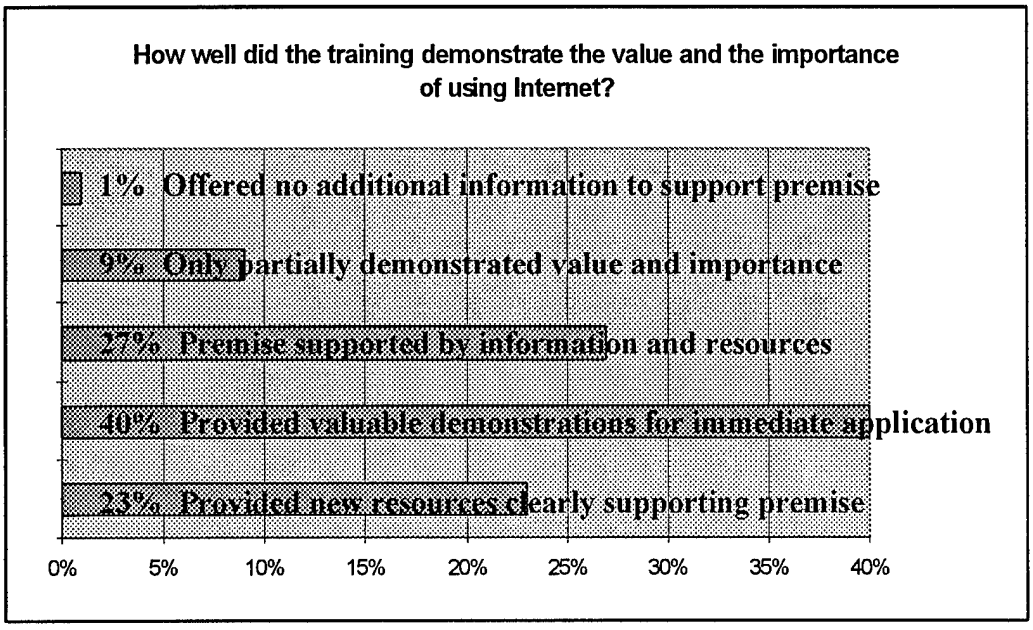

Figure 3: Results of Survey Question 3

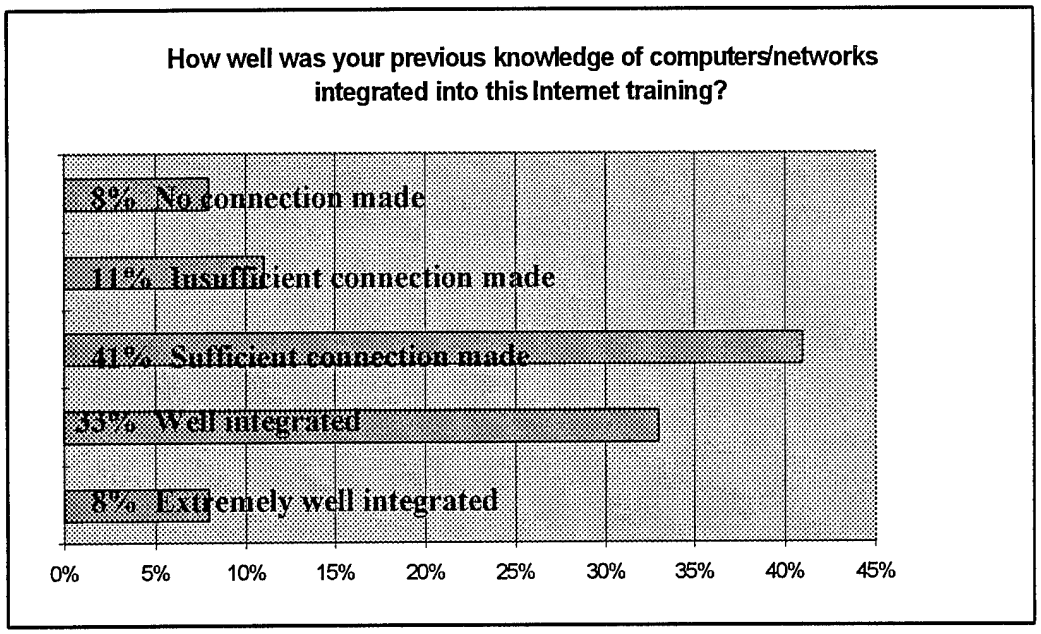

Figure 4: Results of Survey Question 4

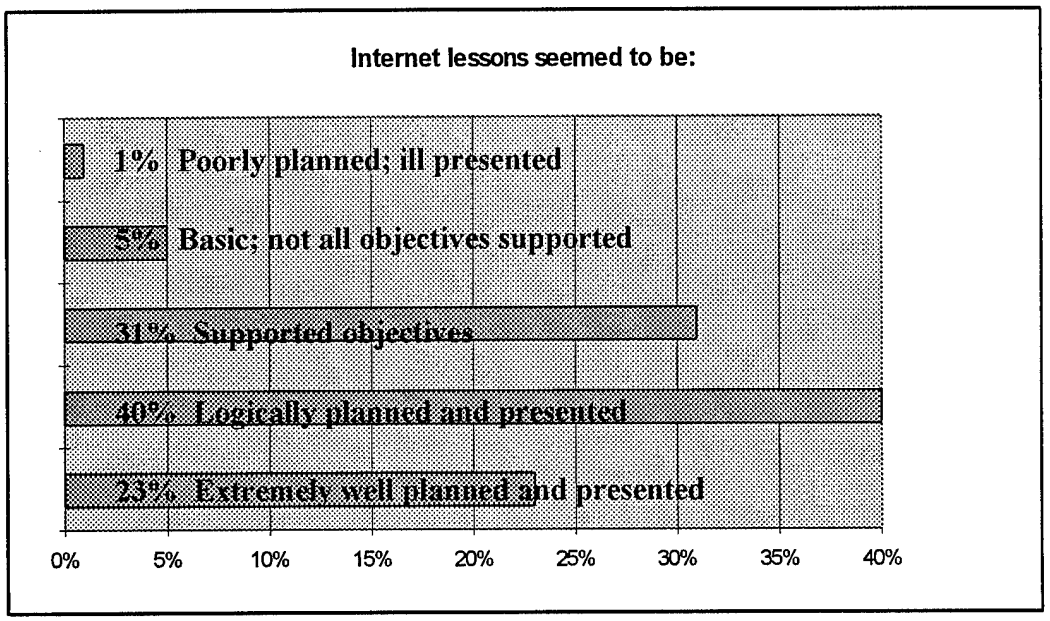

Figure 5: Results of Survey Question 5

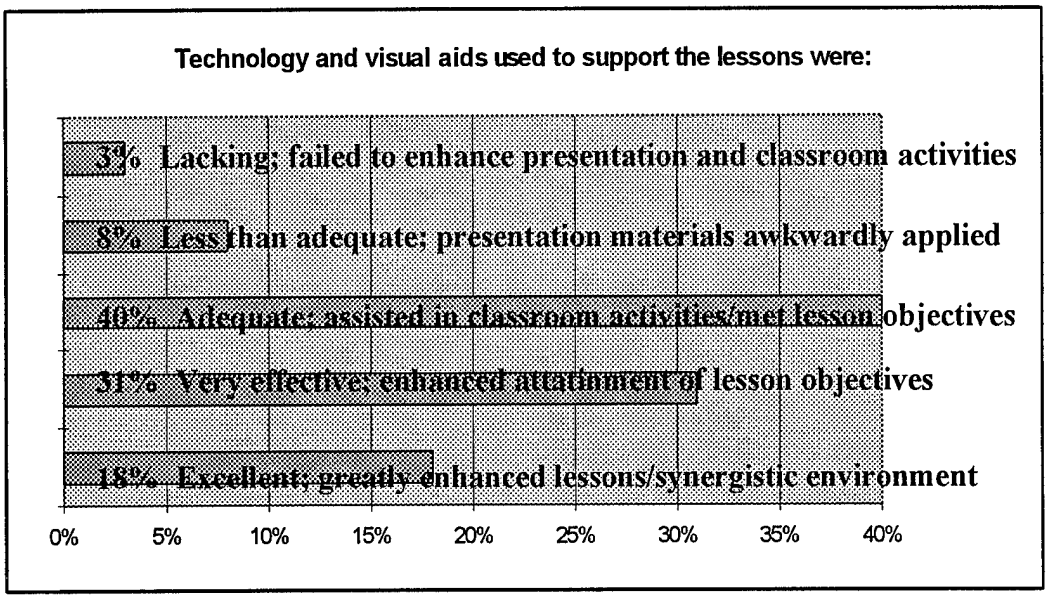

Figure 6: Results of Survey Question 6

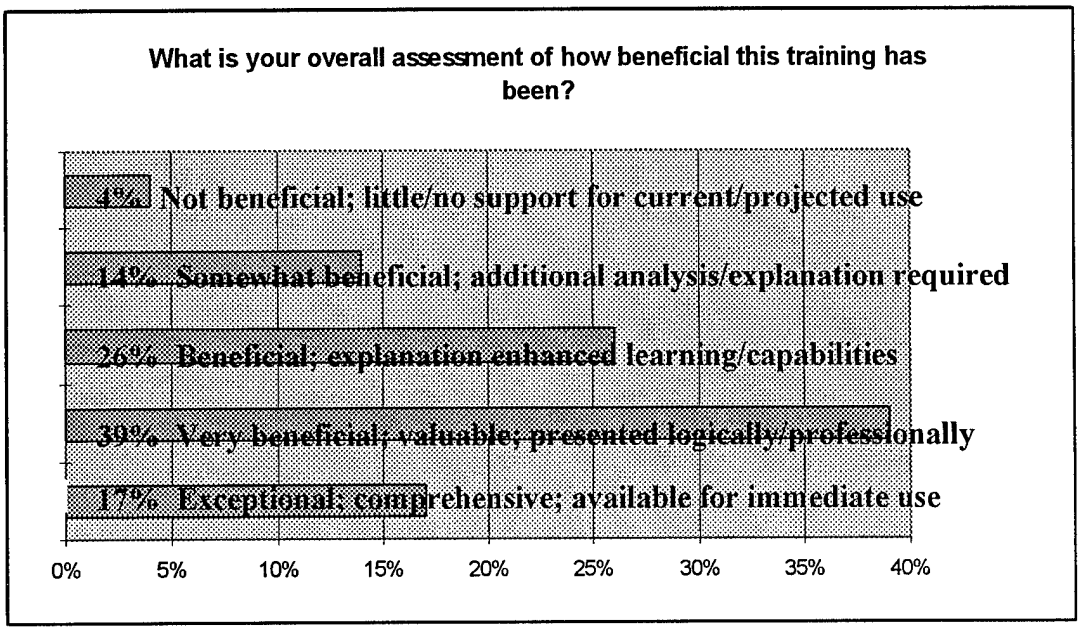

Figure 7: Results of Survey Question 7

In addition to the prepared questions, several students elected to provide additional comments:

84 students expressed a need to have individual access to Internet (hands on)

24 students made comments indicating that training should be conducted at the beginning of the academic year, along with an orientation to e-mail and computer training

24 students commended Internet Instructors

7 students expressed frustration due to system overload during lessons

6 students expressed unhappiness over basic instruction/lesson logic

5 students felt the training was basically a *waste of time*

4 students basically said *Great course, well worth time—very practical and useful*

3 students failed to see any application for the military officer, other than research

3 students felt classes needed to be tailored: *advanced, intermediate, beginner*

2 students basically said *I'm new to computers, and just didn't understand*

1 student expressed a desire for more printed/reference *how to* material

1 student rated the *overall assessment* **6** on a **5** point scale (5 being the highest)

Recommendation: Continue Integration of Information Technology

As information technology continues to advance, so too must our professional and personal education advance in order for us to meet the Air Force vision of *forward presence.* Steady improvements in information-based capabilities will improve the ability of military leaders at all levels to rapidly evaluate changing situations, and enable them to select military options before the crises erupt.[20] Technology must be integrated into all aspects of military life, including personal and other professional pursuits, but the

Knowledge Warrior must be properly prepared to accept it. Issuing a three-thousand dollar computer to an untrained officer will not produce an efficient and productive Knowledge Warrior any more than putting an untrained officer in the seat of an F-15 will produce a fighter pilot. As was stressed earlier in this paper, it is not the equipment that produces results, it is the individual's knowledge of the technology and how to use that technology which produces results.

ACSC needs to work rapidly towards obtaining a virtual desk reference for each student with e-mail, voice-mail, video conferencing, collaboration and research tools to include joint research with other military and civilian agencies. The college needs more interactive computer simulations and exercises designed to stress the application level of information. ACSC is at the leading edge of the military application of information technology today and can only stay there by being proactive in the employment of information technology as it develops.

Summary

One of the tools the Knowledge Warrior has available to exploit the information instrument of power is the Internet. Its use in research is one example of a paradigm shift from traditional library-based research methods to one of instantaneous electronic data retrieval. ACSC experienced this paradigm shift during its academic year 1994-1995 curriculum. Not only has Internet training been added to the curriculum, but it has become a vital research tool as well. ACSC students are currently using Internet in strategic analysis exercises, research, and daily classroom taskings. These endeavors have real-world applicability today and for the future.

Given our experience in using the Internet and in training ACSC students on Internet applications during this academic year, we are convinced military officers must pursue knowledge of advancing information technologies—to include the Internet—in order to ensure their ability to fight and win future wars; wars that may be won before the first bullet is fired, through information dominance. Knowledge implies training, and training requires time and money. To meet the Air Force vision of a technologically advanced military force capable of meeting the challenges addressed in *Global Presence 1995*, leaders at all levels must actively support information technology advancement by taking the lead on learning how to use tools like the Internet themselves, and direct their subordinates to do the same.

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[2] Ibid., 6.
[3] Lieberman, Joseph I. "The Defense Technology Gap." Remarks on the floor of the U.S. Senate. Washington, D.C. 3 March 1995
[4] Toffler, Alvin and Heidi. *War and Anti-War: Survival at the Dawn of the 21st Century.* (New York: Little, Brown, and Co., 1993), 140.
[5] Campen, Alan D, *The First Information War*, (Fairfax, Viginia: AFCEA International Press, 1982) 89.
[6] Ibid., 5.
[7] Ibid., 69-71.
[8] Ibid., 79.
[9] Ibid., 139.
[10] Krepinevich, Andrew F., Jr. "Keeping Pace with the Military-Technological Revolution," Reprinted in Air Command and Staff College War Theory Readings Book, AY1995, Maxwell AFB, Alabama.
[11] Toffler,. 248.
[12] Ibid., 40.
[13] Ibid., 64-66.
[14] Ibid., 73.
[15] Mahan, Alfred Thayer. *The Influence of Sea Power upon History 1660-1783* (Mineola, New York: Dover Publications Inc., 1987 republication of 1894 5th edition), 25.
[16] Lieberman.

Chapter 2

None

Chapter 3

None

Chapter 4

[17] Chiu, Hungdah, and others, eds., *The Future of Hong Kong: Toward 1997 and Beyond*, (Westport, CT: Quorum Books, 1987), 10.
[18] Ibid.
[19] Lucchese, Donna. Course Lecture, AC500, Theater Air Campaign Studies Introduction. Air Command and Staff College, Maxwell AFB, AL, 10 February, 1995.

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Glossary

Archie	A software search tool used to find files stored on anonymous FTP sites. Search routine will try to match specified strings of characters against all file names in all the directories of anonymous FTP sites around the world. Can be very time consuming. Recommend using e-mail to conduct the search.
ARPANet	Advanced Research Projects Agency Network. Precursor to the Internet was developed in the late 60's and early 70's by the US Department of Defense to interconnect major research and data backup sites. Originally intended to provide backup locations for storing vital national security information in case of nuclear war.
Anonymous FTP	See FTP.
BBS	Bulletin Board System. Allows electronic communication between individuals and groups. Operates like manual bulletin or message board—all submissions are open to public scrutiny, anyone can post a response. Thousands of BBS' around the world connect millions of users and encourage international discussion. Some bulletin boards are moderated (monitored).
Browser	Software used to find and explore World Wide Web (Internet) sites.
Cyberspace	Term used to describe the global range of information and resources available on the electronic realm of computer networks.
Dial-up Access	An account, either corporate or individual, that allows access to the Internet.
Download	Moving an electronic copy of a file, document, graphic, etc. from a remote computer to a local (home or office) computer. Also refers to moving files off a storage medium onto a backup medium.
E-mail	Electronic mail. Enables electronic messaging between individuals and between individuals and computers. Allows individuals to send and receive files, search FTP sites using

	Archie, subscribe to and receive mailing list information, etc.
FAQ	Frequently Asked Questions. Compiled lists of commonly asked questions, with answers, on thousands of subjects. Lists are subject-specific and usually compiled by individuals on the Internet who are tired of seeing the same questions appearing over and over on the subject newsgroup or BBS.
FTP	File Transfer Protocol. Allows individuals to move copies of software, files and documents from remote computers to local personal computer (and vice versa). Numerous sites allow public access to their files through the use of "anonymous" as an account or identification name, and are referred to as *anonymous FTP* sites.
Gopher	A simple search tool that allows an individual to search through a remote computer's files using a series of simple menu-based selections. Files are easily downloaded to the local computer. Text documents can be viewed before downloading.
Home page	A personalized welcoming page on the World Wide Web created using hypertext markup language (*html*). Introduces the site, usually provides hyper-text links to information contained on that site as well as links to other world-wide sites.
HTML	HyperText Markup Language. Simple programming language used to create Hypertext documents for use on the World Wide Web. Allows keywords to "link" the document being read to another on the same machine, or somewhere else on the Internet.
HTTP	HyperText Transport Protocol. Protocol that allows hypertexed files to move across the World Wide Web.
Hypertext	Refers to any document or portion of text that contains hot "links" to other documents. When a reader clicks on a "link" (by convention a word usually displayed in blue type) the reader is linked to another portion of the same document, another document on the same machine, or another document on an Internet site in another part of the world.

Internet	A network of network that enables millions of computers to communicate electronically. Includes (software) tools that allow e-mail transmittal, file transfer, remote logging onto distant computers, file and document searches. Evolved from the ARPANet of the late 60's and early '70s
LAN	Local Area Network. Multiple computers physically connected. Facilitates software sharing and communicating.
LISTSERV	Programs that automatically manage mailing lists, distribute the messages posted to the list, manage member lists, etc.
Mailing List	A special kind of e-mail system that receives then re-mails incoming mail to the list of subscribers on the mailing list. Each mailing list has a specific subject, so subscribers select the ones they are most interested in..
Modem	MOdulator, DEModulato. Device that performs analog to digital conversion—allows computers to communicate over telephone line.
Newsgroups	The name for distributed bulletin board systems about particular topics on the Internet. Requires some sort of news reader.
Protocol	A set of rules or standards that different computers will agree on in order to communicate. For example, when using file transfer protocol, the sending and receiving computers agree to use the same set of signals to say "proceed" "data received" "data not received, resend" etc.
Router	A special-purpose computer (or software package) that reads addresses of data packets passing through them, then routes them to the correct destination address.
Search Engines	Describes numerous different software packages developed specifically for doing word and phrase searches among Internet sites.
Server	A computer, or a software package, that provides a specific service to other computers connected to it (e.g. an e-mail server, an Archie server).
Telnet	The program that allows individuals to log onto other computers on the Internet.

URL	Uniform Resource Locator. The address of a unique location on the World Wide Web. Contains three parts, the action (e.g. http, ftp, gopher, etc.), the Internet host address (similar to an e-mail address), and the path to the particular file or document separated by "/" marks (e.g. homepage.html) Example: http://www.rns.com/cgi-bin/nomad
Veronica	Very Easy Rodent Oriented Net-wide Index to Computerized Archives. An extremely effective search tool that enables users to do word searches into the actual text of documents located on Gopher sites worldwide.
WAIS	Wide Area Information Servers. A search tool that enables the user to search for documents on specially-indexed WAIS databases. Follow-up searches can refine results of previous searches to provide more relevant results.
WWW (World Wide Web)	A subset of the total Internet hypermedia sites which are hyperlinked together. The fastest growing segment of the Internet.

Appendix A: Congressional Record: Dated March 3, 1995

THE DEFENSE TECHNOLOGY GAP (Senate - March 03, 1995)

Table of Contents:

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Mr. LIEBERMAN. Mr. President, I rise today to sound an alarm for my colleagues and my country about a clear and present danger to America's ability to defend itself against foreign enemies in the future.

But first, a look back: throughout history, the time between major changes in the weaponry of war was measured in centuries. Then came the industrial revolution, and ever since the weapons of war have evolved with exponential speed. Now we are in the technology revolution and the pace is so furious that we would fight the gulf war today differently than we did just 4 years ago, simply because weapons—and related tactics—have changed so much.

Nations that first perfect new weapons of war are best-equipped to win wars. Those left behind the curve of change must scramble mightily to catch up—to close the gap—or else their vulnerability will be exploited.

At the beginning of this century there was the dreadnought gap. In 1906, Britain's First Sea Lord, John Fisher, commissioned the H.M.S. Dreadnought. It was a technological marvel in its time; bigger, faster, more powerful than any other warship of its kind on the planet.

The Germans, recognizing their vulnerability, built their own dreadnoughts. The English, fearing a dreadnought gap because of Germany's industrial prowess, sped up production and built a total of 15 over the next 6 years. Winston Churchill objected at first, believing there was no dreadnought gap. Indeed, such a gap never materialized. However, Britain's bigger navy provided a key margin for victory in World War I and Churchill,writing in 1928, acknowledged that he 'was absolutely wrong in relation to the deep tides of destiny.' He learned a lesson that served him and his nation well when the time came to fight the Germans again.

In the middle of this century was the atomic bomb gap. At the end of World War II we were the only nation to have the atomic bomb. Russia scrambled to catch up, and that led to the so-called missile gap of the late 1950's and early 1960's. Just as Germany and England rushed to build dreadnoughts after 1906, the United States and Russia rushed to build intercontinental ballistic missiles after 1957.

As we approach the end of the century, there is a new gap—a defense technology gap—and it is the gap between the technological capabilities of our military forces and those of any other nation on Earth. The clear and present danger I foresee is the narrowing of that gap in the next 10 to 20 years by virtue of decisions being made under the dome of this great Capitol building today.

The technology gap allowed us to defeat Saddam Hussein handily and deters other despots from acting rashly against us today. Given the threats we are likely to face tomorrow, I believe we must maintain and increase that gap, not let it shrink.

But the closing of the gap began last week when the House of Representatives voted to cut the heart out of crucial new programs designed to advance American technology. Five hundred million dollars were taken out of the Defense Department's technology reinvestment project [TRP] and $100 million were removed from the related civilian Advanced Technology Program [ATP]. The money is being shifted to pay for military operations in Somalia, Haiti, Iraq, and Bosnia. Additional cuts in the Advanced Research Projects Agency [ARPA], which runs the TRP and other technology programs, are being considered for the 1996 budget.

And just yesterday, a committee of the U.S. Senate cut more than $300 million from TRP and ATP and millions more from other technology programs in the current 1995 budget.

Some in Congress are cutting military technology to pay for military readiness. What they are really doing is shrinking a real technology margin of victory to close an illusory readiness gap—a gap readiness experts say does not exist.

Closing the defense technology gap is a tragic error we must avert. Disinvestment in military technology is the historical equivalent of Great Britain scuttling its dreadnoughts before World War I or America choosing not to build missiles after Sputnik. Cutting military technology programs is, quite frankly, one of the most thoughtless and harmful courses I have seen Congress contemplate in my 6 years in the Senate.

THE NATURE OF THE FUTURE THREAT

Defense spending must meet not only current needs; it must take into account the national security threats of our future. That future is less predictable than it was during the cold war, when we knew who, where, and how capable our enemy was at all times.

The end of the cold war has given us all hope that democracy and free markets will spread around the globe. And there have been tremendous success stories to celebrate. But the absence of a single superpower rivalry has also unleashed a stream of aggression and hostility and countless thousands have died in this post-cold-war world at the altar of nationalism, ethnicity, race, religion, and plain, old anarchic terrorism.

Over the short term—5 to 10 years—the United States faces potential threats in the Persian Gulf and the Korean Peninsula. Known and unknowable challengers loom more ominously on a 10-, 15-, and 20-year time horizon. The danger of a revived, nationalistic Russia is clearly a possibility.

Russia is still armed to the teeth, and the latest intelligence tells us it is moving ahead with major modernization programs in its most advanced weapons systems—submarines and aircraft. It is resource rich with a highly educated population. In the hands of a dictatorial government, it could resume a threatening world role once again. That is America's worst nightmare and, as unlikely as it seems to us today, consider how many unlikely changes have occurred in world history in just the last 5 years.

China is taking Russia seriously with a major modernization program for its military forces—a program that could make China a superpower in the next century. In response to the buildup in China, India is quickly developing its military. And Japan, in the next century, may well be forced to do the same. Other nations in the Asian rim have growing economies, are technologically advanced, and thus are capable of emerging as a threat to the stability of that region and to our interests there.

Add terrorist groups, the proliferation of ballistic missile technology, radical fundamentalist movements, despotic regimes, and the potential proliferation of nuclear, chemical, and biological weapons to the list, and it is easy to see that the future is fraught with perils for our Nation.

THE TECHNOLOGY DETERRENT

Given those dangers, and given the fact that the United States is the biggest target in sight, how can we best protect ourselves?

Thanks to the lessons of the gulf war, we know a big part of the answer lies in our advanced military technology, which can deter or, if necessary, defeat any challenger, whether it be a superpower, a rogue nation, or a terrorist group.

But we cannot rest on our gulf war laurels, content that today's weapons are enough to protect us for decades to come. Our next adversary, for example, may have access to detailed satellite photographs, making a tactic like General Schwarzkopf's 'Hail Mary'

movement of troops around Iraqi forces much more difficult. Or the enemy may possess missiles more capable than the Scud. The next gulf war will be far different than the last.

Those Members of Congress bent on cutting technology programs are repeating the error of so many former great powers: with their emphasis on readiness to the detriment of technological research and development, they are preparing to fight the last war all over again, not preparing for the enemies and wars of the future.

Our best defense is to stay as far ahead of any possible challenger as possible. The vice chairman of the Joint Chiefs of Staff, Adm. William Owens, says we need a high technology umbrella to protect us from the enemies of our future just as the nuclear umbrella protected us in the recent past. The nuclear umbrella deters other nuclear powers, like Russia, from attacking us. But because we are unlikely to use nuclear weapons against a nonnuclear nation, it is the high technology weapons in our arsenal that can keep them at bay, or defeat them if they strike.

THE BATTLEFIELD OF THE FUTURE

And if they strike, we can defeat them with our technologically advanced forces because we are changing the fundamental concept of the battlefield. The struggle for information is supplanting the fight for geographical position as the key goal on the battlefield, and that is where we can enjoy a huge advantage. Army Chief of Staff Sullivan says that the new battlefield will be a digitalized battlefield, one that can lift the fog of war for commanders and infantry alike.

Joint Chiefs of Staff Chairman Shalikashvili and Admiral Owens are contemplating the development of an electronic integrated system-of-systems to give us dominant battlefield awareness where real-time intelligence will lead to virtually instantaneous response. No more lengthy Scud hunts. No more service computers that cannot talk to each other.

The digitalized battlefield will also allow for decentralization of command, giving officers on the scene much greater ability to make the right decisions in response to the rapidly changing events of battle.

And that is just one of a hundred different technology avenues we must pursue. We are on the verge of a revolution in defense technology that will dwarf the impact of the dreadnought, the airplane, the tank, and the missile—a revolution that will not occur to our advantage if we fail to invest in military technology today. For innovation cannot occur on demand. It is a long-term process—yet a rapidly changing process as well. That means even a 1- or 2-year interruption in research and development funding will have terrible consequences down the road. A year is a lifetime in the field of high technology.

ARPA AND DUAL USE

Our current technological superiority has not evolved accidentally or overnight. The Department of Defense's secretive Advanced Research Projects Agency [ARPA], one of the least known, yet most important offices in the Pentagon, has been successfully promoting new technology for the military for the 37 years since President Eisenhower set it up.

In retrospect, it was a truly visionary Presidential accomplishment, and it is probably no accident that Eisenhower, like Churchill, approached this issue of military technology as a man who knew what it was like to order other men into battle. He knew this investment in technology would one day save lives—and it has.

What has ARPA done? Most of its efforts are classified, and it has purposely never recorded its history. But, by carefully investing in the private sector like a high-technology Johnny Appleseed, ARPA has helped bring about supercomputing, desktop computers, the internet—formerly ARPAnet—stealth technology, composites, a global positioning system, laser technology, high resolution imaging, advanced acoustics, smart weapons, and even the ubiquitous computer mouse, which has burrowed its way into millions of American homes and offices.

What is most obvious about this list is the multitude of ways in which military technology has been adapted for civilian use. In fact, technology developed for the military has revolutionized the lives of all Americans—the way we work, the vehicles we drive, the homes we live in. Technology that was designed to protect our way of life has evolved to transform our way of life. That is what the term 'dual use' is all about—the use of technology for military and civilian purposes.

But times are changing—tables are about to be turned. President Eisenhower founded ARPA, but also warned that a military industrial base could swallow our economy. The opposite is now occurring. The defense technology base that was spawned by defense investment is now being swallowed by our civilian technology base.

For example, the computer was invented to help the military design a better way to mount an artillery attack, and it was improved when we needed to target our missiles. The military funded the development of computers and became the biggest market for computers. But today the Department of Defense has but a fraction of the computer market.

For the first time in human history advances in technology are occurring far more rapidly in the civilian sector than in the military. In a sense, we have gone from beating swords into plowshares to creating the plowshares first. Part of the reason is the widespread dissemination of technology among the population. The demand for new and better appliances, cars, and entertainment systems is enormous compared to the demand for better jets, tanks, and ships. The existence of that demand opens the door for cooperation

between government and industry when a technology is of interest to the military and civilian markets.

Government dollars can be leveraged by private investment to produce more than could otherwise be accomplished under the auspices of the defense spending alone. In other words, potential civilian applications for military technology creates a multiplier effect on every Federal dollar we invest. Economies of scale then drive down the cost of the product and the contributing technology. The bottom line is this: Dual use literally gives us more bang for our buck. It is a genuine win- win situation—a win for our economy and for the defense of our
country.

Perhaps most important: if our Government fails to use some of its defense spending to promote private sector technological development, the momentum of change in the design of the tools of war stalls and shifts elsewhere, and we risk losing new advances to the defense establishments of other nations, nations whose interests might be inimical to our own.

For the question is never, 'Will we be able to invent new weapons of war?' The question is, 'Who will invent the new weapons of war?' If we cut back on technological investment, such as is happening in Congress today, we will not always be able to answer that question with the words, 'Made in the U.S.A.'

THE TECHNOLOGY PROGRAMS AT ISSUE: TRP

The technology reinvestment project [TRP] has been the first victim of the technology disarmament now underway in the House and the Senate. Developed by ARPA during the Bush administration, TRP investments are cost shared at least 50-50 with industry, competitively selected, industry-led and aimed at meeting civilian and military needs.

A brief review of current TRP investments gives us a clear idea of how important they are to our national security:

Head mounted displays: Infantrymen cannot walk around with desktop computers. With lightweight, head-mounted displays they can retain full mobility but have a full computer display of the battlefield and realtime intelligence and targeting data before their eyes. If you saw the movie 'Aliens,' you know what I am talking about. But this is an alien concept only if we cut off funding and allow another nation to pick up the ball we drop.

Uncooled infrared sensors: Desert Storm was launched as a night attack using infrared sensors as the basis for high-speed-attack operations. Our military needs to own the night and a new generation of cheaper, much more portable uncooled infrared sensors are an enabling technology being developed by a TRP team that will give us even greater control of the nighttime battlefield than ever before.

Item: Advanced information flow: Military command and control must process an exploding amount of intelligence data immediately to the battlefield for response. But limited communications capacity now clogs our ability to transmit, process, and act on that data. A TRP team is developing digital communications command and control equipment to burst massive new amounts of data through the interpretation and response pipeline at 10 gigabits per second, a 400-percent improvement over today's best equipment. That could mean the difference between life and death, victory and defeat on the battlefield.

Item: Single chip motion detectors: By reducing motion detection to a single chip accelerometer which can withstand accelerations up to 30,000 times the force of gravity, weapons guidance and navigation systems can be made significantly lighter and more sensitive. This will lead us, for example, to newer, more advanced versions of the cruise missiles and smart weapons that were so important to us in the gulf war.

Item: Autonomous all-weather aircraft landing: The efficiency of military aircraft is still limited by night and weather conditions. Operations at secondary fields are curtailed in these conditions if a full ground control system is absent, or if these facilities are disrupted or damaged. Basing aircraft at a small number of primary bases is not a good alternative because our command of the air becomes more vulnerable. A TRP team is working on placing all-weather air traffic and landing control systems into every cockpit, making aircraft independent of ground control availability and weather conditions.

Item: Turboalternator: Army gas-guzzling battle vehicles require a vast and vulnerable logistics chain and limit battlefield operations. The next war may not be fought next to Saudi oil refineries. A TRP team is developing a turboalternator so main engines can be switched off but all equipment and sensors can continue to operate during silent watch modes. This multiplies fuel efficiency and also makes detection through infrared emissions and engine noise much more difficult.

Item: Composite bridging: Military operations continue to be controlled by terrain: every stream or ravine that must be crossed creates a potential strong point for enemy defenders and disrupts the mobility that gives U.S. forces much of their edge. Every time our engineer forces have to bring up cumbersome, heavy bridging equipment for a crossing, enemy defenders can rally and our mobility is disrupted. A TRP team is developing superlight, superstrong composites for portable bridges to multiply the mobility of our battlefield forces.

CONCLUSION

The movement to slash defense technology is being led by the 'techno-nothings.' When it comes to the complex interaction between Government and the private sector in

technological research and development, the techno-nothings do not understand the lessons of history and they do not see the perils and opportunities in our future.

They cannot see or touch a weapon of the future and so they cannot justify spending money to develop it. They say they do not like Government picking winners and losers, but they do not understand that we need to have Government and business work together, sharing costs and talent, to bring about the defense and civilian technologies our citizens will want and need in the future.

It is a good thing that our predecessors in this Capitol building did not have to see a jet fighter before investing in its development, and did not decide to wait until the private sector invented it on its own

They did not have to see or even understand the atomic bomb before spending millions on its creation, and did not decide to wait until scientists built one on their own.

They did not have to see and touch cruise missiles, Patriot missiles, stealth fighters, radar, lasers, and the whole panoply of weapons we now possess before allocating resources to their research and development.

We owe our survival to their foresight. Will we lose our liberty to myopia?

There is, I admit, not much of a constituency fighting for these programs, because we are dealing with the future, not the present. That makes investment in military technology a hard sell; not to the private sector, which wants the partnership, but to those political forces that cannot see much beyond the next election.

We need to go about the business of creating technological change the way some of our ancestors created the great pyramids, cathedrals, and other monumental architectural triumphs of the past: They started those works knowing they would not survive to see them finished, but pressed on with the knowledge that generations yet to come would appreciate what they did.

We must press on with such knowledge ourselves, lest we be, as Churchill said, 'absolutely wrong in relation to the deep tides of destiny.' Those tides are now tides of technological change and it is our destiny—our duty—to recognize there can be no turning back.

I thank the Chair. I yield the floor.

Mr. DASCHLE addressed the Chair.

The PRESIDING OFFICER. The distinguished Democratic leader is recognized under the previous order.
Mr. DASCHLE. I thank the President.

Appendix B: Internet Instruction Schedule

1995		Division 1 (p.m. Seminars) Groups A, B, & C Teach the Seminars listed Group Commanders A: Maj Jeff Hilt B: Maj Debbie Van De Ven C: Lt Col Novak			Division 2 (p.m. Seminars Groups D E, & F Teach the Seminars listed Group Commanders: D: Maj Susan Pardo E: Maj Phil Chansler F: Maj Glenn Whicker		
Day	Course	Group A	Group B	Group C	Group D	Group E	Group F
14 Feb	IT502	Sem 1	Sem 2	Sem 3	Sem 12	Sem 13	Sem 14
16 Feb	IT502	Sem 4	Sem 5	Sem 6	Sem 16	Sem 15	Sem 17
17 Feb	IT502	Sem 7	Sem 8	Sem 9	Sem 18	Sem 19	Sem 20
23 Feb	IT502	Sem 10	Sem 11	OFF	Sem 21	Sem 22	OFF
3 Mar	IT503	Sem 1	Sem 2	Sem 3	Sem 12	Sem 13	Sem 14
7 Mar	IT503	Sem 4	Sem 5	Sem 6	Sem 16	Sem 15	Sem 17
13 Mar	IT503	Sem 7	Sem 8	Sem 9	Sem 18	Sem 19	Sem 20
17 Mar	IT503	Sem 10	Sem 11	OFF	Sem 21	Sem 22	OFF
20 Mar	IT504	Sem 1	Sem 2	Sem 3	Sem 12	Sem 13	Sem 14
21 Mar	IT504	Sem 4	Sem 5	Sem 6	Sem 16	Sem 15	Sem 17
24 Mar	IT504	Sem 7	Sem 8	Sem 9	Sem 18	Sem 19	Sem 20
28 Mar	IT504	Sem 10	Sem 11	OFF	Sem 21	Sem 22	OFF
30 Mar	IT505	Sem 1	Sem 2	Sem 3	Sem 12	Sem 13	Sem 14
31 Mar	IT505	Sem 4	Sem 5	Sem 6	Sem 16	Sem 15	Sem 17
3 Apr	IT505	Sem 7	Sem 8	Sem 9	Sem 18	Sem 19	Sem 20
4 Apr	IT505	Sem 10	Sem 11	OFF	Sem 21	Sem 22	OFF

Table 1: Internet Instruction Schedule for Division 1 and 2

1995		Division 3 (a.m. Seminars) Groups G, H, & I Teach the Seminars listed Group Commanders: G: Maj Teri Netter H: Maj Gary Brand I: Maj Wayne Brasure			Division 4 (a.m. Seminars) Groups J, K, & L Teach the Seminars listed Group Commanders: J: Maj Shelley Christian K: Maj Dan Joyce L: Maj Teresa Tittle		
Day	**Course**	**Group G**	**Group H**	**Group I**	**Group J**	**Group K**	**Group L**
14 Feb	**IT502**	Sem 23	Sem 24	Sem 25	Sem 34	Sem 36	Sem 35
16 Feb	**IT502**	Sem 26	Sem 37	Sem 28	Sem 27	Sem 38	Sem 39
17 Feb	**IT502**	Sem 29	Sem 30	Sem 31	Sem 40	Sem 41	Sem 42
23 Feb	**IT502**	Sem 32	Sem 33	OFF	Sem 43	Sem 44	OFF
3 Mar	**IT503**	Sem 23	Sem 24	Sem 25	Sem 34	Sem 36	Sem 35
7 Mar	**IT503**	Sem 26	Sem 37	Sem 28	Sem 27	Sem 38	Sem 39
13 Mar	**IT503**	Sem 29	Sem 30	Sem 31	Sem 40	Sem 41	Sem 42
17 Mar	**IT503**	Sem 32	Sem 33	OFF	Sem 43	Sem 44	OFF
20 Mar	**IT504**	Sem 23	Sem 24	Sem 25	Sem 34	Sem 36	Sem 35
21 Mar	**IT504**	Sem 26	Sem 37	Sem 28	Sem 27	Sem 38	Sem 39
24 Mar	**IT504**	Sem 29	Sem 30	Sem 31	Sem 40	Sem 41	Sem 42
28 Mar	**IT504**	Sem 32	Sem 33	OFF	Sem 43	Sem 44	OFF
30 Mar	**IT505**	Sem 23	Sem 24	Sem 25	Sem 34	Sem 36	Sem 35
31 Mar	**IT505**	Sem 26	Sem 37	Sem 28	Sem 27	Sem 38	Sem 39
3 Apr	**IT505**	Sem 29	Sem 30	Sem 31	Sem 40	Sem 41	Sem 42
4 Apr	**IT505**	Sem 32	Sem 33	OFF	Sem 43	Sem 44	OFF

Table 3: Internet Instruction Schedule for Division 3 and 4

Appendix C: Internet Course Lesson Plans

IT501—Internet Course Overview

DATE: 26 Mar 95

LESSON OBJECTIVES:

Comprehend how INTERNET can be used to promote professional and personal growth for military professionals.

SOB: Given a definition and capabilities of INTERNET, explain how INTERNET can be useful to military members.

SOB: Explain what is required to access and navigate INTERNET

SOB: Describe what a Valued Add Networks (VAN) is and its relation to INTERNET.

SOB: Describe the paradigm shift that occurred within INTERNET due to World Wide Web Browsers and the impact on the net.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.
2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute stage presentation.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 1, 13 and 14.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/
3. Other reference books you may have on the topic

LESSON OUTLINE:

Thesis: The rapidly emerging growth of the INTERNET will play an increasingly important role in the professional and personal development of every member of the US military.

Main Point I: What is INTERNET and how is it applicable to the "Knowledge Warrior?"

Main Point II: To exploit the INTERNET you must have access and means to navigate though cyberspace.

Main Point III: Capabilities of INTERNET. These capabilities are E-mail, telnet, research and information browsing and searching, FTP (file transfer protocol), multimedia, and video processing.

Main Point IV: World Wide Webs created paradigm shift within INTERNET in 1994.

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction. Special relevance during the Air Campaign lessons when students are required to search for information on IGOs/NGOs, a nation's contextual and operational art elements, and relevant information for a system or nodal analysis.

LESSON OPRs: Faculty: CDR Coffman

IT502—Introduction to the World Wide Web (WWW) and Netscape

DATE: 17 Feb 95

LESSON OBJECTIVES:

1. Comprehend Internet.

SOB: Define in your own words: Internet.

SOB: Describe the applicability of Internet to command and control warfare.

2. Comprehend the functions and capabilities of the World Wide Web (WWW) and Netscape software for browsing the Web.

SOB: Explain the functions and capabilities of the WWW.

SOB: Give examples of how to browse the Internet using the World Wide Web.

SOB: Translate basic terms relevant to accessing the World Wide Web.

SOB: Predict the effects of using hypertext/hotwords to travel between documents/computers.

SOB: Summarize the use and applicability of Search Engines to locate sources of information which satisfy specific request parameters.

3. Apply Internet skills.

SOB: Demonstrate basic functions and capabilities of WWW using the Web browser, Netscape.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 2, 9, 11 and 16.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/
3. Other reference books you may have on the topic.

LESSON OUTLINE:

Thesis: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. As a worldwide link to research and information sources, the Internet provides the capability to get inside a potential adversary's OODA loop.

Main Point I: World Wide Web (WWW).

a. The language of the WWW is simple. Can be related to the toolbooks as an example of hypertext links from one location to another.

b. The Netscape software enables students to browse (search) through the WWW.

Main Point II: Netscape demonstration.

a. Demonstration of Netscape homepage menus and hotwords.

b. Significance of bookmarks and Uniform Resource Locators (URLs).

c. Netscape search capability that looks world-wide for locations that (may) have documents or information which satisfy user-defined search parameters.

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction. Special relevance during the Air Campaign lessons when students are required to search for information on IGOs/NGOs, a nation's contextual and operational art elements, and relevant information for a system or nodal analysis.

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

IT503—E-Mail and Newsgroups

DATE: 17 Feb 95

LESSON OBJECTIVES:

1. Comprehend the Internet functions and capabilities of electronic mail (e-mail).
SOB: Describe the capabilities of e-mail.
SOB: Identify the value of direct writer-to-reader electronic communication.
SOB: Give examples of e-mail's ability to attach and transfer files between remote computers.
SOB: Explain the use of domains and their function within the electronic network.
SOB: Predict the effect of using mail lists as a way of receiving requested information.

2. Comprehend the USENET/Newsgroup capabilities of the Internet using Super TCP and the Netscape browser software.
SOB: Identify the USENET/newsgroup's function as a forum for requesting information.
SOB: Generalize the major newsgroup categories.

3. Apply e-mail and newsgroup techniques.
SOB: Demonstrate e-mail transfer and receive techniques.
SOB: Activate and manipulate USENET/Newsgroups.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.
2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 3, 5 and 6.

FACULTY (INSTRUCTOR) REVIEW READINGS:
1. Dern, *The Internet Guide For New Users*
2. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/
3. Other reference books you may have on the topic.

LESSON OUTLINE:

Thesis: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. Electronic mail provides users the ability to communicate with specific users in order to pass and receive information. It eliminates the "telephone tag" syndrome. USENET and

Newsgroups are forums which allow users to ask questions and exchange ideas and information with thousands of users of similar interest around the world.

Main Point I: Electronic Mail (e-mail).

a. Provides near-instantaneous one-to-one and one-to-many electronic communication.

b. Users are able to send and receive files attached to an e-mail message.

c. Domains allow communications within specific portions of a network.

e. Use "finger" to locate specific individuals on the network.

f. Differences between using the ACSC LAN server versus Netscape for e-mail transmittal and receipt.

Main Point II: USENET/Newsgroups.

a. Users can ask questions, get answers, and conference with others.

b. Major categories (comp., news., rec., alt., etc.) allow user to target specific like-interested users.

c. Can access newsgroups through Netscape browser software or SuperTCP.

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

IT504—Telnet (Remote Login) and File Transfer Protocol (FTP)

DATE: 17 Feb 95

LESSON OBJECTIVES:

1. Comprehend the functions and capabilities of TelNet (remote login) and file transfer protocol (FTP).

SOB: Give examples of Telnet and FTP actions.

SOB: Describe the use of and reasons for telnetting to a remote computer.

SOB: Describe the difference between telnetting to, and browsing on, a remote computer.

2. Comprehend the differences between using WWW browser software (Netscape) and SuperTCP to locate and transfer information to the local computer.

SOB: Explain the differences between accessing a remote computer via Telnet versus Netscape.

3. Apply Telnet and FTP skills.

SOB: Demonstrate the ability to execute basic Telnet and FTP actions on the seminar computer.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 7, 8 and 15.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/
3. Other reference books you may have on the topic.

LESSON OUTLINE:

Thesis: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. Telnet and file transfer protocol (FTP) allow users to electronically connect to remote

computers, search available file directories for relevant information, and transfer files and information back to the local computer.

Main Point I: Telnet (Remote Login)

a. Provides actual connection and access to open archive systems (commonly called "public access servers").

b. User can search directories.

c. Telnet connection handled automatically under Netscape.

d. Value Added Network (VAN) such as America OnLine or CompuServe currently support Telnet and FTP, but not the World Wide Web.

Main Point II: File Transfer Protocol (FTP).

a. Can download files using "anonymous FTP" .

b. Can use Netscape to transfer files via FTP.

c. Most VANs support FTP.

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

IT505 Search Tools and Exercise

DATE: 17 Feb 95

LESSON OBJECTIVES:

1. Comprehend Internet search tools.

SOB: Describe the function and capability of:

a. Gopher
b. Archie
c. VERONICA (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives)
d. WAIS (Wide Area Information Server)

2. Apply Internet search tool skills.

SOB: Locate information on the Internet using search tools and Netscape browsing software.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 10 and 18.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*, pp.309-360
2. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/
3. Other reference books you may have on the topic.

LESSON OUTLINE:

Thesis: The Gopher, Archie, Veronica, and WAIS search tools and databases still provide a large portion of the search capability on the Internet. While the student's interface to these tools has become easier with the new Web browsing tools like Netscape, it is essential the student understands how these tools do their searching so the student can ask the right questions of the search tools.

Main Point I: Demonstrate example searches search using Telnet and Netscape.

a. Gopher
b. Archie

c. Veronica (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives)

d. WAIS (Wide Area Information Server)

Main Point II: Show how to perform these searches via e-mail

Main Point III: Students complete the search tool exercise for hands-on learning.

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

Appendix D: Internet Course Teaching Plans

TEACHING PLAN

IT501—Internet Overview

DATE: 26 Mar 95

LESSON OBJECTIVES:

Comprehend how INTERNET can be used to promote professional and personal growth for military professionals.

SOB: Given a definition and capabilities of INTERNET, explain how INTERNET can be useful to military members.

SOB: Explain what is required to access and navigate INTERNET.

SOB: Describe what is a Valued Add Networks (VAN) is and its relation to INTERNET.

SOB: Describe the paradigm shift that occurred within INTERNET due to World Wide Web Browsers and the impact on the net.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.
2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute stage presentation.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 1, 13 and 14.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The INTERNET Guide For New Users*, pp. 1- 112
2. Eager, *Using The World Wide Web*

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON THESIS: The rapidly emerging growth of the INTERNET will play an increasingly important role in the professional and personal development of every member of the US military.

CLASSROOM PREPARATION: none

LESSON OUTLINE:

Main Point I: What is INTERNET and how is it applicable to the "Knowledge Warrior?"

Main Point II: To exploit the INTERNET you must have access and means to navigate though cyberspace.

- Access is required to drive on the Super Highway. There are only two methods on which to access INTERNET.

1). Dedicated connection - This is accomplished by linking large organizational networks physically connected together.

2). SLIP/PPP (Serial Line Interface Protocol/Point-to-Point Protocol). This allows access through dedicated INTERNET connection via phone line.

- Valued Added Networks (VANS) provide an inexpensive means to obtain vast amount of information on their network sites. These VANS include America On-Line, CompuServe, Prodigy, and others.

- Software requirements are TCP/IP (Transfer Control Protocol/INTERNET Protocol) and a World Wide Web Browser.

Main Point III: Capabilities of INTERNET. These capabilities are E-mail, telnet, research and information browsing and searching, FTP (file transfer protocol), multimedia, and video processing.

Main Point IV: World Wide Webs created paradigm shift within INTERNET in 1994.

LESSON OPRs: Faculty: CDR Coffman

LESSON:

Attention/Motivation:

"As a net is made up of series of ties, so everything in this world is connected by a series of ties. If anyone thinks that the mesh of a net is an independent, isolated thing, he is mistaken. It is called a net because it is made up of a series of interconnected meshes, and each mesh has its place and responsibility in relation to the other meshes."

—Buddha

Lesson Overview: This lesson will provide a brief overview of INTERNET and its applicability to military members. It will cover course content and students expectations.

This lesson also cover how to access INTERNET and navigation by a World Wide Web Browser.

Main Point I: What is INTERNET and how is it applicable to the "Knowledge Warrior?" As an international network of networks, the INTERNET is a portal to the vast reaches of information thought out the world. It was created by the Department of Defense in the 60's as a way of surviving communication during a nuclear war. It evolved as a means for academics to collaborate on various research projects. Today, it is exploding as multimedia world wide consumer market.

It has not headquarters nor is it regulated. Numerous volunteer organizations that are the backbone of organizing what could be informational chaos. These networks do not require tightly centralized administrative control. In fact, decentralization is necessary to enable rapid growth of new parties wishing to join the networks. Given these characteristics, networks hold tremendous potential to enrich our collective cultural, political, social live lives and enhance democratic values everywhere.

Main Point II: To exploit the INTERNET you must have access and means to navigate though cyberspace.

- Access is required to drive on the Super Highway. There are only two methods on which to access INTERNET.

1). Dedicated connection - This is accomplished by linking large organizational networks physically connected together. These organizations include: international governments, militaries, universities, and major corporations.

2). SLIP/PPP (Serial Line Interface Protocol/Point-to-Point Protocol). This allows access through dedicated INTERNET connection via phone line. Technology expansion of data compression and telecommunications protocols allows inexpensive access to INTERNET.

- Valued Added Networks (VANS) provide an inexpensive means to obtain vast amount of information on their network sites. These VANS include America On-Line, CompuServe, Prodigy, and others. They are commercial on-line venders that provide package information at for a fee. They are developing means to access INTERNET through their services. VANS are most often mistaken to be INTERNET and small portion of it.

- Software requirements are TCP/IP (Transfer Control Protocol/INTERNET Protocol) and a World Wide Web Browser. TCP/IP provides the compatibility for dissimilar computer systems. World Wide Web Browsers allows you to navigate the vast regions of cyberspace.

Main Point III: Capabilities of INTERNET. These capabilities are E-mail, telnet, research and information browsing and searching, FTP (file transfer protocol), multimedia,

and video processing. These are not futuristic capabilities but present technology that can be exploited today.

Main Point IV: World Wide Webs created paradigm shift within INTERNET in 1994. What once was a computer geek' heaven is now becoming and economic way of life. World Wide Web sites are growing at an alarming rate.

World Wide Webs are:

- User friendly and multimedia capable

- Inexpensive and can usually be obtained free on the INTERNET

- Provides information on-demand (near real time)

-Allows for easy means of collaboration on research and other topics of interest (newsgroups)

- Provides global connectivity.

- Compatible to every common computer system

- Browser's designs and capabilities are exponentially increasing

Summary: INTERNET allows a military professional with a ***PC*** to turn it into a supercomputer that has more processing power and access to more data than the large mainframe supercompters that cost millions for dollars less than ten years ago. Due to the plummeting prices of personal computers and telecommunications is making INTERNET the new economic and commercial frontier.

Remotivaton/Closure: The next war will depend on off the shelf products. INTERNET will become the backbone of that infrastructure and communications. A with capabilities that are increasing at an astounding rate makes it not only the edge of the latest technology, it is redefining the why we live. It provides the basic tools for Toffler's "Knowledge Warrior."

TEACHING PLAN

IT502: Introduction to the World Wide Web (WWW) and Netscape

DATE: 21 Feb 95

LESSON OBJECTIVES:

1. Comprehend Internet.

SOB: Define in your own words: Internet.

SOB: Describe the applicability of Internet to command and control warfare.

2. Comprehend the functions and capabilities of the World Wide Web (WWW) and Netscape software for browsing the Web.

SOB: Explain the functions and capabilities of the WWW.

SOB: Give examples of how to browse the Internet using the World Wide Web.

SOB: Translate basic terms relevant to accessing the World Wide Web.

SOB: Predict the effects of using hypertext/hotwords to travel between documents/computers.

3. Apply Internet skills.

SOB: Demonstrate basic functions and capabilities of WWW using the Web browser, Netscape.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 2, 9, 11 and 16.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Eager, *Using the World Wide Web*

3. Hawaii Community College Internet Survival Skills Home Page

http://kawika.hcc.hawaii.edu/

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction. Special relevance during the Air Campaign lessons when students are required to search for information on IGOs/NGOs, a nations's contextual and operational art elements, and relevant information for a system or nodal analysis.

LESSON THESIS: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. As a worldwide link to research and information sources, the Internet provides the capability to get inside a potential adversary's OODA loop.

CLASSROOM PREPARATION:

White Board: Name, Seminar/Office Information, Schedule

Computer: Turn on and set to Program Manager

Handouts: Internet :-) (terms and concepts) Atch 1

LESSON OUTLINE:

Main Point I: Internet and World Wide Web (WWW) terms and concepts

Main Point II: Netscape demonstration

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

LESSON:

Attention: Hello my name is! Explain who you are and how you came to teach this course.

Motivation: Follow up from Internet 501 (auditorium hour) on benefits and power of Internet

Overview: Explain the that there is a very technical side to the Internet as well as the operator/user side, and where your lessons will focus within that range. Generally, this will be much more of an operators course versus a technical course.

What you (the student) will not be able to do after this course, is go to your next unit and know how to physically connect them and instantly install all the hardware and software that they need. You'll need a tech rep/local geek/Comm Sqn individual to assist you.

What you (the student) will know is what the Internet is, what it has to offer in general and why or why not, your unit should be on it. You'll know how to use the system by navigating via a WWW browser, and you'll know that when it breaks—to call someone else to fix it.

Specifically the dates and content of the course will be (see class and course schedule)
Today we will look at: Basic Terms and Concepts
Examples/Canned Demo/Power Point Slides
Go On-Line

Main Point I

Use "Internet :-)" handout to cover terms and concepts (Atch 1)

- Title has an electronic Happy Face. Use this to talk about Internet "Netiquette" (Flaming, happy/sad face/listen before you talk)
- Operating System/Human Interface entry
  Over simplified analogy of operating systems and human interface:
  PC: DOS to Windows
  Internet: UNIX to Browser (Netscape/Mosaic/WinWeb)
- Basic functions of Internet:
  FTP File Transfer Protocol—enables you to send and receive files to/from distant computers (documents/images/sound files/software programs)
  Telnet Remote log on—your computer acts like a terminal connected to the remote host and you can execute commands that run software programs on the remote computer
  E-Mail Communication—one on one
  Newsgroups Communication—public
  Global forums in which people with common interests share information, discuss topics and ask and answer questions

- Access to the Internet:

1 **Physical connection**
Direct
Telephone line (Cable TV)
SLPP - Serial Line Internet Protocol
PPP - Point to Point Protocol

Two most common ways for you to connect
Home personal service
ACSC - Seminar computer not Laptop
(line and IP address limitations)

2 **Protocol** (internet/computer language) (operating system)
TCP/IP - Transmission Control Protocol/Internet Protocol
Super TCP

3 **Navigator** (user friendly interface)
Netscape (Mosaic, WinWeb)

ACSC access to Internet:

1 Turn seminar computer on (LAN not required)
2 Super TCP active (automatic or activate icon)
3 Activate Netscape icon

Walk through steps:

1 Turn computer on (have on and in Program Manager)
2 Use "Program Manager" Handout to talk about required and various optional software they should be familiar with
- Use Atch 2 (Program Manager Example)
Super TCP / TCP/IP
Netscape
Internet Group:
TCP/IP
Netscape
Eudora (E-Mail as Netscape only goes out not in)
AOL (America On-Line)
Comm Works Control Center (Modem)
Download (Central file to collect stuff from Internet)
Chameleon Sampler: (where **TCP/IP** came from, **Ping)**
PKUNZIP: PKUNZIP (compress and decompress files)
Could/should have other programs (GIF, Lview, Speak)
Some work transparently others you need to activate
Sticky Note: Example of software available off the Internet (sends yellow sticky notes to friends via internet)
NOTE Check for viruses

3 Activate Netscape! "We are now on the WWW—Netscape"
You are able to perform <u>all</u> functions except inbound E-mail
Use "Netscape Home Page" (Atch 3) handout to explain

- WWW World Wide Web
Takes the basic functions above (FTP, Telnet, Newsgroups) AND other Internet navigation systems (Archie, Gopher, Veronica) AND

integrates them into one navigator application

WWW lets you **jump** from location to location
computer to computer
application to application
file to file.....via **hypertext**

- Hypertext HTTP/http HyperText Transport Protocol
  Hypertext Allows you to move (jump) from one place to another within or outside a document in a nonlinear/ nonsequential manner. Allows you to move randomly using words/phrases/icons as links. HTTP is transparent to you. Use HTML to activate HTTP

- HTML HyperText Markup Language
  The part you see on the screen as **hot words** that perform the jumping/linking function.

Look at hot words on computer screen and Home Page Handout. These hot words you see on the screen and the handout are known as...

- **Home Pages** A Home Page is the "front door"
  The place you enter the resource you selected. Just as you would keep going through door after door after door to get into the room you wanted, you will keep going through Home Page after Home Page after Home Page until you enter an actual document/program/newsgroup.

- **Basic survival until next class**:
  1 System up and running (Computer, Super TCP and Netscape)
  2 Use HyperText to move around
  3 Animated "N" tells you it's working
  4 If you want to stop it hit "Stop"
  5 Location (top address) tells you where you are "URL" called Earl
  6 Bottom address tells you where you're trying to go
  7 To keep track of a Home Page you want to go back to another day, hit "Bookmarks". More to follow on how to effectively use them

Main Point II

Canned demonstration using Power Point Slides, dummy Netscape screens or hard copies of Home Pages and documents/files. (Even if you have a good Internet connection you'll save time and have a backup if you plan a canned demonstration).

However, save time in the lesson to actually get on the Internet—to show that it really does work. Demonstrate some basic hypertexted moves to various Home Pages.

Summary: You now have your first Internet lesson under your belt, you know the basic functions and how to access the Internet. Using the WWW browser of Netscape you can navigate using hypertext/hot words and move from Home Page to Home Page until you find the document, picture or soundwave of your choice.

Remotivation: You now have your Internet beginners surfing license. Please grab what ever opportunity you have—if only during a classroom break to...

Closure: ...go on out there and "hang ten."

Attachment 1 to IT502 Teaching Plan

INTERNET :-)

Operating System/Human Interface
Basic Functions: FTP
Telnet
E-Mail
Newsgroups
Access to Internet: 1. Physical Connection 2. Protocol 3. Navigator
WWW (World Wide Web)
HTTP/http (HyperText Transport Protocol)
HTML (HyperText Markup Language)
Hot Words
Home Pages
Basic survival until next class:

1. System up and running (Computer on, Super TCP on, Netscape activated)
2. Use HyperText to move around
3. Animated "N" tells you it's working
4. If you want to stop—hit "Stop"
5. Location (top address) tells you where you are "URL" called Earl
6. Bottom address tells you where you're trying to go
7. To keep track of a Home Page you want to go back to another day hit "Bookmark." More to follow on how to effectively use bookmarks

TEACHING PLAN

IT503: E-Mail and Newsgroups

DATE: 17 Feb 95

LESSON OBJECTIVES:

1. Comprehend the Internet functions and capabilities of electronic mail (e-mail).

SOB: Describe the capabilities of e-mail.

SOB: Identify the value of direct writer-to-reader electronic communication.

SOB: Give examples of ability to attach and transfer files between remote computers.

SOB: Explain the use of domains and their function within the electronic network.

SOB. Predict the effect of using mail lists as a way of receiving requested information.

2. Comprehend the USENET/Newsgroup capabilities of the Internet using Super TCP and the Netscape browser software.

SOB: Identify the USENET/newsgroup's function as a forum for requesting information.

SOB: Generalize the major newsgroup categories.

3. Apply e-mail and newsgroup techniques.

SOB: Demonstrate e-mail transfer and receive techniques.

SOB: Activate and manipulate USENET/Newsgroups.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 3, 5 and 6.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Eager, *Using the World Wide Web*

3. Hawaii Community College Internet Survival Skills Home Page
http://kawika.hcc.hawaii.edu/

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON THESIS: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. Electronic mail provides users the ability to communicate with other specific users, in order to pass and receive information. It eliminates the "telephone tag" syndrome. USENET and Newsgroups are forums which allow users to ask questions and exchange ideas and information with thousands of other users of similar interest around the world.

CLASSROOM PREPARATION:

White Board: (Overview) E-Mail, Addresses, Bookmark Mgt, USENET/Newsgroups
Computer: Turn on and have Netscape up—ensure Bookmarks are set as you want them
Handouts: Internet 503/Lesson Handout (hardcopy or electronic) (Atch 1)

LESSON OUTLINE:

Main Point I: Electronic Mail (e-mail)

a. E-Mail
b. E-Mail Addresses
c. URL Addresses
e. Bookmark Management

Main Point II: USENET/Newsgroups

a. What are they?
b. Major Newsgroup categories
c. Demonstration

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

LESSON:

Attention How many of you have taken the opportunity to "go surfing" ?

Motivation One of the frustrations you may have encountered was figuring out how to get somewhere, how you got somewhere or how on earth you can get back there. It's true that for E-mail, THE best way of obtaining someone's E-mail address is simply make contact the old fashion way and, ask them. But understanding the basic address system will ease some of that frustration, along with learning some ways to manage those addresses.

Overview E-mail
Addresses (E-mail and URL/Internet)
Address Management (Bookmark Management)
USENET/Newsgroups

Main Point I—Electronic Mail

a. E-Mail: The application that ignited the growth of the Internet in the 1970's and is still the primary application used today. Provides near-instantaneous one-on-one and one-to-many electronic communication. Users are also able to send and receive files attached to E-mail messages.

You should all be familiar with basic E-mail procedures, but what some students do not fully appreciate is that you can E-mail "anyone else in the world" who has access to E-mail. Of course, the tricky part is obtaining their E-mail address...

b. E-mail Addresses
Domain Name System (DNS)
Numbers or plain English (system uses the numbers but people prefer plain English)

3 Part Hierarchy to the Domain Name System (basic address):

1	2	3
user name	@	host computer . first-level domain

Example:

smith	@	aol.com

(John Smith at America OnLine which is a commercial service)

Parts 1 and 2 are very simple, part 3 can get more complicated as several subdomains may/are often needed. Subdomains are listed in the address, one after another with a . (dot) in-between each, and reading from left to right always ends with the **first-level domain**.

There are 6 possible first-level domains:

edu	Education
gov	Government (non-military)
mil	Military
com	Commercial
net	A network support company
org	Other Organizations

Because of the many hardware and software differences in moving from one system to another, some systems may require additional information attached to the basic address:

E-Mail from Compuserve to anyone outside Compuserve = INTERNET:smith@aol.com
E-Mail from ACSC to anyone outside Maxwell AFB = smtp@server2[smith@aol.com]

Example E-Mail addresses (examples taken from the "Internet Yellow Pages"):
jkearney@raven.csrv.uidaho.edu
Federal Grant Information
James Kearney@
Right to Left: Edu,Univ of Idaho, "C" server, "raven" local/host computer
yee@atlas.arc.nasa.gov
Archive of NASA Projects
Peter Yee@
Right to Left: Government, NASA, archive, "atlas" local/host computer

laura@editorial.com
Online Bookstore (full text)
Laura Fillmore@
Right to Left: Commercial, "editorial" local/host computer

For you to E-mail outside Maxwell AFB: **smtp@server2[name@xxx.xxx]**
Your return address/for those outside Maxwell to E-mail you:
("**ops#xxx**" is your "ops 1odd" or "ops 2 even"...)

your last name=first name%ops#xxx%acsc@acscsvr2.au.af.mil

You can E-mail out and in from your laptop computer
You can E-mail out by entering or using hypertext on the Internet, but be sure to give them your laptop computer E-mail address as a return address

c. URL Addresses
URL Uniform Resource Locators
3 basic parts to an URL:

1	2	3
Action	:// Internet Host Address	/ Path to the file

NOTE: No spaces and need :// and /

1. Action/method of access

http	Hypertext Transfer Protocol
ftp	File Transfer Protocol (FTP)
gopher	Gopher protocol
telnet	open a Telnet session (remote login)
wais	begin a WAIS search (Wide Area Information Servers)
news	an Internet Newsgroup

2. Internet host address - as above E-mail address (in between the // and the first /)

3. Path to the file - various path/file names separated by / marks (slash mark)

Tips: Case and content sensitive (uppercase letters, ~, _)
Turn off view option if machine is slow (Netscape, Options, Auto Load Images)
Use sites closer to your physical location when possible
If you can't connect and have reentered the address, try entering the root address:
Full address: http://www.elpress.com/gallery/homepage.html
Root address: http://www.elpress.com

Some URLs for finding E-mail addresses
(Best source is still to exchange E-Mail addresses in a more traditional manner)
Internet White Pages: http://ds.internic.net/ds/dspgwp.html
Finger Database: finger://help@dir.su.oz.au

Great Stuff, BUT a bit overwhelming, and you probably already cart around enough little pieces of paper with addresses on them. So how can you manage these cumbersome addresses to your advantage?

<u>Management of E-mail and URL addresses</u>

E-mail Use internal electronic address system
Also: Banyan Vines
BBS
Drag and Drop "M:\help\mail.hlp" to C Drive or whatever

URLs: Use Bookmarks for Netscape

d. Bookmark Management

Bookmark Menu Item: Add Bookmark SHOW ON SCREEN
View Bookmark
Major Categories
Any unfiled Bookmarks

Add Bookmark: Adds the current/active Home Page to your master list (bottom) You can edit it later into your master file system
View Bookmark: Will come back in a minute
Major Categories: Select an item and hypertext your way there

(NOTE: You may need to ensure the Bookmarks on each Seminar's computer is set up to demonstrate the following)

"View Bookmark" gives you a "Bookmark List"
From that window "Edit" gives you a better "Bookmark List"
Any new items you've added will appear at the bottom of the list (arrow down)
NOTE: Works only if manual defaults of "Top Level of Listing" in Add Bookmarks
Under and "Entire Listing" in Bookmark Menu are set.
Highlight the item and you will see background information on that item
You may want to go over to the "Name" section and give it a name you will remember
You can also add information in the "Description" section
With the item still highlighted use the Up/Down buttons to move your item up/down
NOTE: You can maneuver into outline hierarchy.
Save what ever Home Pages you wish and forget them while your surfing or working, but until you edit them into the master file they will show up randomly on the initial Bookmark request and then at the bottom of the master list. You must edit them to more easily identify "your" bookmarks or your "easy reference" system.

You can also "export" and "import" bookmarks. Tip: If you are actively using the Internet you may want to carry a floppy disk with your bookmarks "at the ready"
You may also want to remove a bookmark (see bottom right button)
To get out simply hit "Done Editing" and "Close"

Those are the basic ways of managing all those long IP addresses. Lets now move on to another actual application of the Internet—USENET/Newsgroups.

Main Point II—USENET/Newsgroups

a. What are USENET/Newsgroups? Terms are interchangeable (at least on the non-technical side): USENET, Newsgroups, Netnews

Electronic Newsgroups are global forums in which people with common interests share information, discuss topics and ask questions—E-mail between a group of people.
In theory, the conversation never ends as articles (newsgroup messages) are "open-ended." Someone makes a statement or asks a question and anyone in the listening audience can jump in and comment or answer the question—first come, first served. Now this conversation may be immediate or it may be a day or two.

Where E-mail is a private conversation, Newsgroups are a public conversation. There are two basic types of public conversations:

#1 Newsgroups
Data base of messages
Posting notes on a bulletin board

#2 IRC (Internet Relay Chat)
Real time conversations
Talking

Access through Netscape program

Access through separate software

Description of USNET from Using Mosaic, by Que Corporation (pg 26)
"To get an idea of how discussion happens in newsgroups, you might think of Usenet as a large building, and each newsgroup is a room in that building. Each room has a name on the door, and a brief description of the topic of discussion in that room. In some of these rooms, you can find a small number of people politely discussing a serious topic. You can come in, ask a question, and join in the discussion.

In other rooms, you may find a loud, raucous group of people discussing a heated topic. Each person is shouting out his or her opinion loudly, with little regard for the shouting from the people around them. You try to enter the conversation, but you either find that your opinions are ignored or you are insulted. Both of these conditions happen everyday (sometimes in the same newsgroup at different times!) on Usnet."

The name of a newsgroup describes the subject on which the articles focus. Newsgroup names contain several subcategories, separated by periods. The broad, top level category name is on the left side while the most specific identification category is on the right

Example: comp.sys.mac.hardware
computer, systems, Macintosh, hardware

comp.infosystems.www.misc
forum for general discussion of WWW related topics

b. Major top level categories:

biz	business	(serious/facts)
sci	science	(serious/facts)
comp	computer	(serious/facts)
k12	education K-12	(serious/facts)
soc	social issues	(opinions)
news	Usenet	(opinions)
rec	recreation	(opinions)
misc	miscellaneous	(strong opinions)
talk	controversial subjects	(strong opinions)
alt	alternative	(alternative ideas and opinions)

Just as you sign up to receive a magazine or newspaper, you subscribe to specific newsgroups—but there's no charge

Examples: Newsgroup about lists of existing newsgroups: news:news.groups
Newsgroup about TV shows: rec.art.tv

USENET Etiquette:
Culture of its own

Read for awhile before jumping in
Determine the tone, current topics, the regulars
FAQ—Read the Frequently Asked Questions section
SHOUTING
xxxxxx Asterisks emphasize
:-) Emoticons
Avoid duplicating what others have said
Use E-mail when it becomes a personal conversation
Never post something that you would not want your boss or your mother to read

c. Demonstrate USENET/Newsgroups via Netscape
In addition to subscribing to Newsgroups there is another source of information/communication: **Electronic Mailing List.**
This system of communication works via your E-Mail.
To know what mailing lists are available surf the Internet/ or review hard copy sources.
To subscribe, E-Mail to the address indicated in your source.
For details see Chapter 16 in "The Internet Guide for New Users" Daniel P. Dern. (all students should have copy.)

Summary	E-mail	-Primarily from your Laptop Computer
		-Internet out only (Netscape limitation)
	Addresses	-Basic parts
	Management	-E-mail electronic directory
		-Bookmarks
	USENET/Newsgroups/Mailing List	

BE CAREFUL WHAT YOU ASK FOR, YOU'LL PROBABLY GET IT :-)

Remotivation/Closure: So, now when your spouse doesn't seem to be agreeing with your particular point of view on an issue, just log on to the Internet and find a group of people who may also share your distorted (optional word) view of the world!

Attachment 1 to IT503 Teaching Plan

E-Mail, Addresses, Bookmarks and USENET/Newsgroups

E-mail Addresses: Domain Name System (DNS)

3 Part Hierarchy to the Domain Name System (basic address):

1	2	3
user name	@	host computer . first-level domain

Example:

smith	@	aol.com

(John Smith at America OnLine which is a commercial service)

First-level domains:

edu	Education
gov	Government (non-military)
mil	Military
com	Commercial
net	A network support company
org	Other Organizations

Some systems must include additional information to make system-to-system connections:
Examples:
E-Mail from Compuserve to anyone outside Compuserve = INTERNET:smith@aol.com
E-Mail from ACSC to anyone outside Maxwell AFB = smtp@server2[smith@aol.com]

Example E-Mail addresses (examples taken from the "Internet Yellow Pages"):

jkearney@raven.csrv.uidaho.edu
Federal Grant Information
James Kearney@
Right to Left: Edu,U of Idaho, "C" svr, "raven" local/host computer

yee@atlas.arc.nasa.gov
Archive of NASA Projects
Peter Yee@
Right to Left: Gov, NASA, archive, "atlas" local/host computer

laura@editorial.com
Online Bookstore (full text)
Laura Fillmore@
Right to Left: Commercial, "editorial" local/host computer

For you to E-mail outside Maxwell AFB:
smtp@server2[name@xxx.xxx]

Your return address/for those outside Maxwell to E-mail you:
("**ops#xxx**" is your "ops 1odd" or "ops 2 even" or whatever.)

your last name=first name%ops#xxx%acsc@acscsvr2.au.af.mil

URL Addresses: Uniform Resource Locators (URL) 3 Parts to an URL:

1		2		3
Action	://	Internet Host Address	/	Path to the file

NOTE: No spaces and you need :// and /

1. Action/method of access

http	hypertext transfer protocol
file	file transfer protocol (FTP)
gopher	Gopher protocol
telnet	open a telnet session
wais	begin a WAIS search
news	an Internet newsgroup
mailto	send mail

2. Internet host address - as above E-mail address (in between the // and /)
3. Path to the file - various path/file names separated by / marks (slash mark)

Tips: Case and content sensitive (uppercase letters, ~, _)
Use sites closer to your physical location when possible
If you can't connect and have reentered the address, try entering the root address:
Full address: http://www.elpress.com/gallery/homepage.html
Root address: http://www.elpress.com

Some URLs for finding E-mail addresses:
Internet White Pages: http://ds.internic.net/ds/dspgwp.html
Finger Database: finger://help@dir.su.oz.au

Bookmarks: Use Netscape "help" for more information

USENET/Newsgroups:
The name of a newsgroup describes the subject on which the articles focus. Newsgroup names contain several subcategories, separated by periods. The broad, top level category name is on the left side while the most specific identification category is on the right

Example: comp.sys.mac.hardware
computer, systems, Macintosh, hardware
comp.infosystems.www.misc
Forum for general discussion of WWW related topics

Major top level categories:

biz	business	(serious/facts)
sci	science	(serious/facts)
comp	computer	(serious/facts)
k12	education K-12	(serious/facts)
soc	social issues	(opinions)
news	Usenet	(opinions)
rec	recreation	(opinions)
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Examples: Newsgroup about lists of existing newsgroups: news:news.groups
Newsgroup about TV shows: rec.art.tv

USENET Etiquette:
Culture of its own
Read for awhile before jumping in
Determine the tone, current topics, the regulars
FAQ—Read the Frequently Asked Questions section
SHOUTING
xxxxxx Asterisks emphasize
:-) Emoticons
Avoid duplicating what others have said
Use E-mail when it becomes a personal conversation
Never post something that you wouldn't want your mother to read!

Mailing Lists: See Daniel P. Dern's "The Internet Guide for New Users" Chapter 16

TEACHING PLAN

IT504: Telnet (Remote Login) and File Transfer Protocol (FTP)

DATE: 16 Mar 95

LESSON OBJECTIVES:

1. Comprehend the functions and capabilities of telnet and file transfer protocol (FTP).

SOB: Give examples of Telnet and FTP actions.

SOB: Describe the use of and reasons for telnetting to a remote computer.

SOB: Describe the difference between telnetting to, and browsing on, a remote computer.

2. Comprehend the differences between using WWW browser software (Netscape) and SuperTCP to Telnet and transfer information to a local computer.

SOB: Explain the differences between accessing a remote computer via Telnet/FTP versus Netscape.

3. Apply Telnet and FTP skills.

SOB: Demonstrate the ability to execute basic Telnet and FTP actions on the seminar computer.

INTERNET/INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 7, 8 and 15.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*
2. Eager, *Web Using the World Wide*

3. Hawaii Community College Internet Survival Skills Home Page

http://kawika.hcc.hawaii.edu/

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON THESIS: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. Telnet and file transfer protocol (ftp) allow users to electronically connect to remote computers, search available file directories for relevant information, and transfer files and information back to the local computer.

CLASSROOM PREPARATION:

White Board: (Overview) TELNET, FTP, Homework/Student Exercise

Computer: 1. For Telnet (VT320) or TN3270 to work via Netscape, you must set the following options in the "Netscape Preferences" under "Directories, Application, and News" window:

Telnet application: **C:\utils\supertcp\vtterm.exe**

TN3270 Application: **C:\utils\supertcp\tn3270.exe**

2. Review Teaching Plan and create Bookmarks for URLs you'll want to use during lesson.

Library of Congress: **http://lcweb.loc.gov/homepage/lchp.html**
Rutgers University: **telnet://info.rutgers.edu**
Fed Govt Info—Internet: **http://www.webvertising.com:80/usgovdoc**

LESSON OUTLINE:

Main Point I: Telnet (Remote Login)

a. What is it?
b. Telnet connection handled automatically under Netscape
c. Telnetting with out the World Wide Web

Main Point II: File Transfer Protocol (FTP)

a. What is it?
b. FTP via Netscape
c. FTP with out the World Wide Web

d. Homework/Final Exam

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

LESSON:

Attention: You're 1/2 the way to becoming Internet experts—at least 1/2 as far as we're going to be able to take you in the time available on our Internet adventure.

Motivation: One of the unique aspects of the Internet is that information and data bases that you never imagined having access to, are now available. In addition to access to this source of infinite information and data, vast amounts of it can be transferred right into your home or office.

Overview: The two Internet applications that allow this access and transfer are: Telnet and FTP. Telnet opens new doors to this information, data and services, while FTP enables you bring those files, programs to your PC.

Main Point I: TELNET

a. What is it?
Telnet is an application that links your computer to another, where your computer then acts like a terminal connected to that remote host computer. This allows you to execute commands on that host computer, interrogating: Electronic library catalogs
Information databases and
Educational programs

After connecting with a remote computer, you usually must enter a login ID and password to actually use the computer. Because it is unlikely that you will have an account, systems providing public service allow you to log in with a special ID such as "guest" or "newuser."

Telnet sessions usually display a menu-based navigational system. Each system has it's own way of moving and causing action within that system. Usually, directions are explained on the menu or in a "read me" type of file. As well as logging on to the system, you must also log out, usually with the command "quit" or "end."

As with all the other applications of Internet, the key is to have the address to where you want to go. If you're using the hypertext, you don't have to give it much thought, except to bookmark those sites you want to go back to. You may acquire other address while browsing the net, through books or magazines or from your friends who have found some good sites to go visit.

b. Telnet via Netscape (see CLASSROOM PREPARATION above)

#1 Go to Library of Congress. Several ways to get there:

1. Bookmark
2. Go to **Yahoo** to **Government** to **Agencies** to **Library of Congress**
3. URL: **http://lcweb.loc.gov/homepage/lchp.html**

Go to **LOCIS** (note TELNET address to students BEFORE activating)
(telnet://locis.loc.gov/)
Note: action items in bold
Federal Legislation (# **2**) (enter # and hit return)
type # (suggest # **8**—current Congress)
Retrieve _____ (fill in the blank with military, budget...)
Display
type next "#" in series to see more
Display item #" to see more on item
All to see more info
# of page—for next page if there are any (2 of 3 etc)
End to get out OR If you want a copy:
Highlight words
Enter "Edit" and hit "Copy" (clipboard)
"Paste" into a word document
"Print" the word document
End to get out, **12** to log off (twice)

#2 Telnet Rutgers University's, a large and active system
Telnet: **telnet://info.rutgers.edu**
First screen has new info—hit return for Main Screen
Main Screen
One Option: Activate #8 by typing the number or highlighting
Select New Structure (WWW)
Activate #9 (Govt Info) (type #8 + return or highlight + return)
Activate #3 (Gopher Servers)
(Note Options 1 + 2 are not open to the public)
From here you have many options—pick one after using the space bar to view a few of them.
One that works is the US Dept. State Foreign Affairs Network (DOSAFAN). Then try:
7 Dispatch
1 1995
X Most current is at the bottom, but they are all big files and may take a little time, but this gives the text of the dispatches

Another Option: Press space bar for next screen
Activate #18 by typing the number or highlighting
Type in a word of your choice (follow screen directions)

c. Telnet the Old Fashioned Way

Why would you want to Telnet the old fashioned way?

- A site that does not have WWW access (there are lots of them)
- Log on to a remote computer on which you have an account
  Check your E-Mail while at the home/office, back to office/home
  Access your office computer system while on the road/TDY

How to do it: Get out of Netscape
Activate TN3270 or VT100
In the Telnet window, hit **Connect**
Type in telnet address (use one from above or any other you may have)
hit **OK**

Whether you Telnet the old fashioned way, or the newer—more user friendly way, Telnet's purpose is to allow you to look and interact with whatever information/data the site has.

Main Point II: FTP (File Transfer Protocol)

a. What is it?

FTP provides access to the files that reside on remote computers AND allows you to transfer (send/receive) them directly to your computer. Files can be documents, digital images, sound files or software programs.

Sometimes an FTP action similar to Telnet is required, in that you must log on with an ID and password. Try: "anonymous" as your ID and your Internet address as your password.

Using FTP to browse for files can be difficult because FTP doesn't allow you to look at a file's contents. Therefore, file names and extensions may provide the best indication of what a file might contain—then again, maybe not!

b. FTP via Netscape

#1 Go to Fed Govt Information on the Internet
http://www.webvertising.com:80/usgovdoc/
Select **A** in the alphabetical listing
Show that the first entry is:
2.01 AMERICANS WITH DISABILITIES ACT (ADA)
and that the URL is and **FTP** action/address
Place mouse on URL and again note the FTP action in before and after URL
Select that URL—FTP action address (**ftp://handicap.afd.olivetti.com**)
Select **index**
Scan through to see basic information/and index
Activate **Back** button on Netscape window menu bar to go back to directory

Select **pub/**
Select **dogs/** (or whatever)
Show that: Text files you can see, print/download, Zip files you can download

You have just completed an FTP. However, this is a very modern way of FTPing as the Web Browser logged on for us and hypertexed us around very easily.

#2 (For another easy FTP via Netscape—if you wish)
Net Search
Web Crawler Searching
Search for "FTP"
Choices
Suggestion: FTP site listings
Search Expanded FTP sites by file (fifth entry down)
Search for "military"
NATO documents; plane related files...
We now have to FTP this site:
type in URL: **ftp://byrd.mu.wvnet.edu**
select "pub" (Note FTP in URL)
select War Powers Resolution of 1973.txt (Note FTP)

c. FTP the Old Fashioned Way
Why? Because just like some Telnet Sites, not all FTP locations are currently compatible with Web Browsers.

For example. Lets say that you are an AF person sitting at home and you want to download the latest USAF Deadalus Want Ads from MPC—find that next job.

1. Double click on FTP icon in Super TCP program group
2. Click on the Log icon to show informational messages from the remote system
3. Enter IP address for AFMPC computer: **136.149.1.197**
4. Enter Login: **FTP**
5. Enter your Internet E-mail address as a password:
   smith=john%ops1odd%acsc@acscsvr2.au.af.mil
6. Window should come up with one similar to File Manager
7. Navigate to **pub/wantads** on remote computer
8. Select **Support.zip**
9. Press **Info** button (in middle)
   Shows you the size of the file and last modification date/time
10. Select the local (destination directory). Where do you want to put the file?

d. Homework/Final Exam
Our next class is our final one. To celebrate that occasion, I have a homework assignment for you—a kind of take home final exam. During our last lesson we'll cover Search

Engines, and then, just prior to receiving your Internet diploma (that's a joke), you will each have the opportunity to give your seminar mates an Internet "show and tell".

You may work individually or in teams of two

During your moment in the Internet spotlight you should

Show (via a bookmark something of interest you found on the net
and

Tell us any interesting experiences or horror stories you encountered in obtaining your selection

In addition to text documents, it would be great to see an array of items such as:

Pictures
Sound Waves
Video Clips
FTP Server Results
Telnet Site Results
Mailing Lists Results
Newsgroup Activity
Internet Relay Chat Activity

Summary: Telnet: Lets you log on to hundreds of other computers—allowing you to execute commands on that host computer.

FTP: Lets you log on to hundreds of other computers—allowing you to transfer files, programs and data bases to your own computer.

The WWW makes the whole process much easier, but you may not always have access to the Web, and there are still many sites not tailored to the Web, as yet.

Remotivation: Telnet and FTP are two of the basic tools—the foundation on which other, more user friendly capabilities (Web Browsers) are based. Understanding how they work helps you to better understand an use all of the capabilities of the Internet.

Closure: Next time, you get to do most of the talking as we will all take a look at what you've found out on the net.

TEACHING PLAN

IT505: Search Tools and Exercise

DATE: 24 Mar 95

LESSON OBJECTIVES:

1. Comprehend Internet search tools.

SOB: Describe the function and capability of: Gopher, Archie, VERONICA, WAIS

2. Apply Internet search tool skills.

SOB: Present data/files/information located on the Internet having used search tools.

INTERNET/ INFORMATION TECHNOLOGY (IT) COURSE OBJECTIVES:

1. Comprehend the concept and capabilities of Internet.

2. Apply Internet tools and techniques.

JPME PHASE I OBJECTIVE: Comprehend how Internet hardware and software capabilities and techniques enhance planning, communication and operational effectiveness in joint/combined/service operations.

CONTACT HOURS: 45 minute seminar.

STUDENT READINGS: Dern, *The Internet Guide For New Users,* Chapters 10 and 18.

FACULTY (INSTRUCTOR) REVIEW READINGS:

1. Dern, *The Internet Guide For New Users*, pp.309-360
2. Eager, *Using The World Wide Web*
3. Hawaii Community College Interment Survival Skills Home Page
   http://kawika.hcc.hawaii.edu/

LESSON INTEGRATION AND RATIONALE: Applicable throughout entire ACSC course of instruction.

LESSON THESIS: The rapidly emerging growth of the Internet will play an increasingly important role in the professional and personal development of every member of the US military. The Gopher, Archie, Veronica, and WAIS search tools and databases still provide a large portion of the search capability on the Internet. While the student's interface to these tools has become easier with the new Web browsing tools like Netscape,

it is essential the student understands how these tools do their searching so the student can ask the right questions of the search tools.

CLASSROOM PREPARATION:

White Board: (Overview) Search Tools, Student Exercise, Survey

Computer: Verify standard software settings and connections

Handout:	Search Tools	Atch 1
	Archie Search by E-Mail	Atch 2
	Internet Training Survey	Atch 3

LESSON OUTLINE:

Main Point I: Explain and demonstrate Search Tools (Archie, Gopher, Veronica, WAIS)
Main Point II: Student exercise
Main Point III: Internet Training Survey

LESSON OPRs:

Students: Maj Joyce (Sem 38), Maj Netter (Sem 29), Maj Van De Ven (Sem 8)

LESSON:

Attention/Motivation: Surfs Up and the competition is on. Instead of listening to me for the entire time today—you have the opportunity to show all of us, your particular surfing technique.

However, not to be upstaged too much, I do have one last major aspect of the Internet I want to share with you first: Search Tools.

Overview: Search Tools, Exercise, Survey

Main Point I: Search Tools

Archie

Archie servers maintain a data base of file information (name, size, update)
There are 40 Archie servers around the world
Each server collects file information (NOT the file itself) on publicly-accessible sites in it's region (US, Japan, etc...) DAILY!
Once a month all the servers world-wide share information (over 1500 sites)
Common method to search: Telnet to obtain a list of files and FTP addresses
Then you can FTP to connect and download the files you want

Good tool but not user friendly
However, WWW and user friendly browsers such as Netscape let you hypertext your way around using Archie sites—without even knowing it, unless you're paying close attention
If you're looking for recent information, try an Archie search—you can even conduct an Archie search from you're Laptop via E-Mail
Provide the "Archie Search By E-Mail" handout for any interested students, or refer them to the ACSC, BBS "INTERNET INFO", Internet Course Info, Student Handouts

Gopher

Developed at U of Minnesota—home of the Golden Gophers
Gopher like Archie is a software application that resides on a host computer
Internet has more than 5,000 Gopher servers
Gophers allow you to search and navigate through the Internet via menus. These menus are similar to WWW in that 10 options on a Gopher menu may take you to 10 different locations/host computers
Gopher menus are more user friendly
You can usually see if the item is a document or a file
By simple keyboard actions (arrows/enter) Gopher takes you directly there
Besides saving the FTP step, you can SEE what you're getting—usually

So Gopher was an improvement over Archie, but you now have too much information with no real organization to all the data...

Veronica (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives)

Archie is a searching mechanism for FTP sites
Veronica is a searching mechanism for all the Gopher sites around the world
You access Veronica from a Gopher menu
Activating an option such as "Other Gopher and Info Servers"
You obtain an additional window with a place to type in your search word

The results of Archie, Gopher and Veronica searches depend on how accurately a file name or menu selection describes what you are looking for...

WAIS (Wide Area Information Server)

WAIS looks for information that resides "in" individual files/documents
Content of files/documents are indexed
Results are returned with those files having the most "hits" listed first
One common way to access WAIS is through a Gopher
Just like Veronica you want "Other Gopher and Info Servers" options
But then you want to look for an entry with WAIS in it

Demonstrate WAIS via Netscape

Go to: **http://www.wais.com/newhomepages/default.html**
Click on the try a SEARCH yourself hotword
Lets say we want to find "Bob Dole's FAX number"
First you want to find the WAIS server on which to perform your search
Directory of Servers:
(http://quake.think.com/newhomepages/directory-of-servers.html)
Enter **Congress Phone Numbers** in window (action positions you to database)
Result will list a number of servers with the best match at the top—select top svr.
On next search page enter **Bob Dole** and press **search**
Next page will have Bob Dole's name in hypertext. Click it and read his numbers!

You can see the basic evolution of these software applications. Those of us who are just now entering the Internet world are experiencing the transition from these original and hard working applications to an even more user friendly application with the WWW and the ability to hypertext from: document to document, location to location and application to application.

On the WWW, with one of the many browsers such as Netscape, we can accomplish all of the things listed above and not even know that we've been to an Archie/Gopher/Veronica site. However, as we are still in a transition phase not all of the original applications have been adapted (some may never be) so you need to be aware that there are more options than what Netscape can currently offer. Understanding the basic system applications will make you a more effective user of the whole Internet. But in the mean time lets look closer at the newer, more user friendly Netscape way of conducting searches.

Search Engines via Netscape (bring up Net Search Home Page)

The Lycos Home Page: Hunting WWW Information
WebCrawler Searching
Query Interface to the WWW Home Pages Broker
Centere Universitaire d"Informatique World Wide Web Catalog
The Jump Station Search Page/Jump Station
NIKOS
ALIWEB
WWWW - World Wide Web Worm
ArchiePlexForm

Search Engine Search
W3 Search Engines and CUSI

Select one or two Search Engines and walk through a demonstration

Hypertext to Search Engine
Type in word of choice (military, country, weapons, etc...)
Look through results

Main Point II: Exercise

Assuming "the dog did not eat your homework", it's time for each of you to show us the results of your surfing adventures.
Rules from last class:
- You may work individually or in teams of two
- During your moment in the Internet spotlight you should: Show (via a bookmark something of interest you found on the net "and" Tell us any interesting experiences or any "horror stories" you encountered in obtaining your selection. In addition to text documents, it would be great to see an array of items such as:

Pictures, Sound Waves, Video Clips, FTP Server Results
Telnet Site Results, Mailing Lists Results, Newsgroup Activity
Internet Relay Chat Activity

Main Point III: Survey

Please complete this survey
The front part is directly related to the research aspect of this Internet project and should have an effect on how Internet will be incorporated into next year's curriculum.
Please feel free to add any additional comments on the back side of the survey
Need to collect surveys during class and return ASAP—Thanks :-)

Summary/Remotivation: I've enjoyed sharing what I know of the Internet with you. It's an interesting world out there in cyberspace, and I hope you feel somewhat comfortable and excited about traveling around in it.

The WWW is our highway and browsers such as Netscape are our vehicles to travel that highway, still accomplishing the basic functions of: Telnet
FTP
Newsgroups
E-Mail

Don't get overwhelmed with all the data out there, you know the basic address systems and you know the basic management tools to keep them organized.

Closure: You also know that those computer geeks are not such bad guys after all. So take a geek to lunch, because together we are the knowledge warriors that will fight future battles. Or in the words of Gary Brand (Internet Instructor from Seminar #37)

"The Geek shall inherit the Earth"

Attachment 1 to IT505 Teaching Plan

INTERNET - Search Tools

Archie

Data base of file information (name, size, last updated)
Each server collects file information (NOT the file itself) DAILY!
Once a month all servers world-wide share information (over 1500 sites)
Common method of searching an Archie site
    Telnet to obtain list of files and FTP addresses
    FTP to connect and download the files you want
Good tool but not terribly user friendly

Gopher

Developed at Univ of Minnesota—home of the Golden Gophers
Gopher like Archie is a software application residing on a host computer
Gophers allow you to search and navigate through the Internet via menus
More user friendly as you can usually see if the item is a document/file
Simple keyboard actions (arrows/enter)
Besides saving the FTP step, you can actually see what you're getting

Veronica

(Very Easy Rodent-Oriented Net-wide Index to Computerized Archives)
Archie is a searching mechanism for FTP sites
Veronica is a searching mechanism for all Gopher sites around the world
Access Veronica from a Gopher menu
Activate an option such as "Other Gopher and Info Servers"

WAIS

(Wide Area Information Server)
WAIS looks for information that resides "in" individual files or documents
Access WAIS is through a Gopher
Activate an option such as "Other Gopher and Info Servers"
Then look for an entry with WAIS

Search Engines via Netscape (bring up Net Search Home Page)

The Lycos Home Page: Hunting WWW Information
WebCrawler Searching
Query Interface to the WWW Home Pages Broker
Centere Universitaire d"Informatique World Wide Web Catalog
The Jump Station Search Page/Jump Station
NIKOS
ALIWEB
WWWW - World Wide Web Worm
ArchiePlexForm

Search Engine Search: W3 Search Engines and CUSI

Attachment 2 to IT505 Teaching Plan

Archie Search via E-Mail

1. This handout covers the basics of how to do an archie search by e-mail. Because Archie searches can take a long time (longer than you want to stare at a computer screen), many prefer to do Archie searches this way.

2. Acknowledgments: The information in this handout was downloaded from the Internet by sending e-mail archie requests to some of the archie servers listed below (primarily the University of Nebraska Lincoln and INTERNIC in New Jersey because they were closest)

3. Author: Maj Dan Joyce, ACSC, Seminar 38

HELP for the archie e-mail server, (# 3.0) as of 10 Apr 93.
To perform an archie search via email, send mail to
archie@<archie_server>
Where <archie_server> is the name of an archie host.
(E.g., archie@archie.unl.edu)
The current (and complete) list of archie servers can be found with the "servers" command (described below). A sample list is:

Archie Host Name	Numeric IP Address	Location
archie.au	139.130.4.6	Australia
archie.edvz.uni-linz.ac.at	140.78.3.8	Austria
archie.univie.ac.at	131.130.1.23	Austria
archie.uqam.ca	132.208.250.10	Canada
archie.funet.fi	128.214.6.100	Finland
archie.th-darmstadt.de	130.83.22.60	Germany
archie.ac.il	132.65.6.15	Israel
archie.unipi.it	131.114.21.10	Italy
archie.wide.ad.jp	133.4.3.6	Japan
archie.kr	128.134.1.1	Korea
archie.sogang.ac.kr	163.239.1.11	Korea
archie.rediris.es	130.206.1.2	Spain
archie.luth.se	130.240.18.4	Sweden
archie.switch.ch	130.59.1.40	Switzerland
archie.ncu.edu.tw	140.115.19.24	Taiwan
archie.doc.ic.ac.uk	146.169.11.3	United Kingdom
archie.unl.edu	129.93.1.14	USA (NE)
archie.internic.net	198.48.45.10	USA (NJ)
archie.rutgers.edu	128.6.18.15	USA (NJ)
archie.ans.net	147.225.1.10	USA (NY)
archie.sura.net	128.167.254.179	USA (MD)

The "Subject:" in mail sent to archie is treated as part of the message body (leave the subject line blank). Command lines begin in the first column. All lines that do not match valid commands are ignored. For a complete explanation of the archie system use the "manpage" command to request a copy of the manual page. Send an archie request with just the word "manpage" in the message.

Example Archie E-mail request

An example of an archie request for files on Hong Kong is shown below. Some explanation of the commands and settings is in order. Refer to the sample e-mail message on the following pg).

1. Put the name of the archie server in the To: line (closer usually=faster).
2. Leave the Subject line blank.
3. Start all commands in column 1.
4. **Set maxhits 150**. This tells the archie server to return a MAXIMUM of 150 entries that meet your criteria. Choose this wisely (i.e. don't set it to 1000—you probably have no intention of going through 1000 entries). The lower the number, obviously, the quicker the return on your request.
5. **Set output_format terse**: Note there is an underscore (_) between output and format. This gives you a one-line entry file location, size and date. It keeps the result you get back a little easier to work with.
6. **Set search sub**: This instructs Archie to look for substring matches of the term you are looking for. I recommend sub, but other values are listed below:

Command	Effect on an Archie Search
set search exact	String must match exactly(including case)
set search subcase	Substring match. Case sensitive.
set search sub	Substring match. Case insensitive.
set search regex	Regular expression (see ed(1)) search. Case sensitive. The archie manual page gives examples of regular expressions.

7. **Set sortby hostname**: This will have archie sort your results by the name of the host computer. We recommend this, because is allows you to quickly eliminate duplicate listings on the same file at one site. Other options are:

Command	Effect on the sorting of Archie Search Results
set sortby filename	Sort files/dir by name, using lexical order (reverse order: 'rfilename')
set sortby hostname	Sort on the archive hostname, in lexical order (reverse order: 'rhostname')
set sortby size	Sort by size, largest files/dir first (reverse order: 'rsize')

set sortby time Sort by modification time, with the most recent file/dir names first (reverse order: 'rtime')

8. **Find XXXX**: Last but not least, tell Archie what to look for (fill in the XXXX). In this example, I was looking for files on Hong Kong. It is often a good idea to ask for variations on the theme (hongkong, hong-kong, hong, kong) to find other files in which you may be interested.

E-mail Archie Request from Dan Joyce to Archie at INTERNIC

To: smtp@server2[archie@archie.internic.net]
Cc:
Bcc:
From: Joyce Daniel@Ops4EVEN@acsc
Subject:
Date: Tuesday, March 14, 1995 14:58:19 CST
Attach:
Certify: Y
Forwarded by:

---

set maxhits 150
set output_format terse
set search sub
set sortby hostname
find hong-kong
find hong
find kong
find hongkong

Sample Archie results

1. The mail message the INTERNIC Archie server returned is shown below.
2. Results were too big to put in a mail message, so the ACSC mail system delivered them as an attachment MAIL.TXT)
3. Use the mail system to copy the attachment to a DOS file and look at the results.
4. Note it took Archie about nine hours to return an answer. This will vary with load on the network, load on a particular server, and time of day. What the heck, the tide table and phase of the moon probably have an effect as well.

Mail Message Back from INTERNIC Archie Server to Dan Joyce

To: Joyce=Daniel%Ops4EVEN%acsc@acscsvr2.au.af.mil
Cc:
Bcc:
From: (Archie Server) archie-errors@ds0.internic.net
Subject: archie [find hongkong] part 1 of 1
Date: Wednesday, March 15, 1995 0:10:34 CST

Attach: MAIL.TXT
Certify: N
Forwarded by:

The original SMTP message is being delivered as an attachment
because its length exceeds 6000 bytes.

Contents of MAIL.TXT Attachment to INTERNIC Archie Mail Message to Dan Joyce

1. The results on this search were large. The file size was 50K, or ten pages printed in landscape format. As you can see, Archie can give you more potential locations on which to look for information than you could ever deal with.

2. In order to save space and illustrate some key results, I have drastically edited the results.

3. A hint on formatting your results: I recommend you open the results as a Word file, set the page format to Landscape (File, Page Setup, Paper Size) and font to Courier 15 CPI. This will make many of the entries fit on one line. I've put a space between each entry here for readability and used a smaller font to make most entries fit on one line.

4. Each result lists the following:
   a. Internet location where you can find the file
   b. Date/Time file was last modified
   c. Size of file in bytes (nice to know BEFORE you start downloading FTP)
   d. The path and file name of the file

Remember you can tell Archie to sort the results in other ways (file size, date, etc.)

5. Comments in **(Bold Parenthesis)** below were added by Dan Joyce to point out interesting features of the results.

Okay, This is What Archie Sent Back:

Received: by acscsvr2.au.af.mil; Wed, 15 Mar 95 00:11:23 CST
To: Joyce=Daniel%Ops4EVEN%acsc@acscsvr2.au.af.mil
From: (Archie Server) archie-errors@ds0.internic.net
Reply-To: (Archie Server) archie-errors@ds0.internic.net
Date: Wed, 15 Mar 95 01:08 -0500
Subject: archie [find hongkong] part 1 of 1

(Archie will echo back the parameters of your request)
>> path Joyce=Daniel%Ops4EVEN%acsc@acscsvr2.au.af.mil
>> set maxhits 150
>> set output_format terse

>> set search sub
>> set sortby hostname
>> find hong-kong
Search type: sub.
athene.uni-paderborn.de 18:00 21 Dec 1993 779 bytes
/news/comp.archives/auto/comp.infosystems.gopher/Announcement-Gopher-at-the-Chinese-University-of-Hong-Kong.Z

cocoa.contrib.de 18:00 8 Dec 1991 10213 bytes
/t3/pub/tex/language/chinese/chtex/hong-kong.report.gz

coombs.anu.edu.au 09:18 19 Jul 1994 4507 bytes
/coombspapers/coombsarchives/anthropology/theses-abstracts/hong-kong-theatre.txt

cs.dal.ca 19:00 20 Dec 1993 1185 bytes
/comp.archives/comp.infosystems.gopher/announcement-gopher-at-the-chinese-university-of-hong-kong

ftp.cc.adfa.oz.au 16:15 18 Dec 1994 23940 bytes
/pub/tex/ctan/language/chinese/chtex/.in.hong-kong.report.

ftp.cc.adfa.oz.au 19:00 8 Dec 1991 512 bytes
/pub/tex/ctan/language/chinese/chtex/hong-kong.report

ftp.cs.rmit.oz.au 19:00 8 Dec 1991 10213 bytes /tex-archive/language/chinese/chtex/hong-kong.report.gz

(I removed many entries for brevity here and further on)

>> find hong
Search type: sub.

achilles.doc.ic.ac.uk 18:00 26 Sep 1992 5339 bytes
/tex/aston/languages/vietnamese/tuoi_hong.tex

athene.uni-paderborn.de 02:48 16 Jul 1994 512 bytes /doc/FAQ/news.answers/hongkong-faq

athene.uni-paderborn.de 02:27 16 Jul 1994 512 bytes /doc/FAQ/soc.answers/hongkong-faq

athene.uni-paderborn.de 03:44 16 Jul 1994 512 bytes /doc/FAQ/soc.culture.hongkong

(Note similar files in different directories at one site)

ftp.ibp.fr 19:00 15 Oct 1992 370993 bytes /pub4/mac/info-mac/snd/cheech-chong.hqx

(Archie found the substing hong in what appears to be a location in France (.fr) for Cheech and Chong sound bites for the Macintosh computer.)

>> find kong
Search type: sub.
asterix.fi.upm.es 18:00 29 Apr 1993 537456 bytes /pub/msdos/langtutor/kong1_1a.zip
asterix.fi.upm.es 18:00 29 Apr 1993 373947 bytes /pub/msdos/langtutor/kong1_1b.zip
athene.uni-paderborn.de 02:48 16 Jul 1994 512 bytes /doc/FAQ/news.answers/hongkong-faq

>> find hongkong
Search type: sub.
athene.uni-paderborn.de 02:48 16 Jul 1994 512 bytes /doc/FAQ/news.answers/hongkong-faq
athene.uni-paderborn.de 02:27 16 Jul 1994 512 bytes /doc/FAQ/soc.answers/hongkong-faq

(In retrospect, the search for hongkong and hong-kong were unnecessary because the searches for hong and kong would have found everything matching hongkong and hong-kong search patterns)

Attachment 3 to IT505 Teaching Plan

See Appendix I for a copy of Attachment 3, the Internet Course Survey

Appendix E: Software Installation Checklists

1 Overview

These procedures are designed to assist you in configuring the computers in the seminar rooms with the necessary software for the Internet course of instruction.

All of the seminar computers should already be loaded with the following software packages found in the "Super TCP" Program Group:

1) FTP
2) VT320 (Telnet)
3) TN3270
4) Ping

Checklist 1-1: Ensure Super-TCP is loaded

Done	Step	Action
	1	Double click on Super TCP Program Group.
	2	Find Icons for FTP, VT320, TN3270, and Ping
	3	Close Super TCP Program Group
	4	If you couldn't do steps 1-3, ask for help from seminar tech rep or other Internet course instructor. If still unsuccessful, see DST. Netscape will not work without Super TCP software.

1.1 What You Will Install

These procedures will take you step by step through the downloading and installation of the following software:

a. PKUNZIP. This software will allow you to uncompress (or "Unzip") software that is stored in a compressed (or "Zipped") format. Software is compressed to shorten the time it takes to transfer files over the Internet.

b. NETSCAPE. This package is the primary World Wide Web (WWW) Browser we will use in the Internet course. While there are other browsers available (such as Mosaic), Netscape seems to be the easiest to install and use.

d. LVIEW. This package will allow you to view graphics files (e.g. SHUTTLE.GIF). While Netscape has a graphics file viewer built into it for viewing these files while browsing (or surfing the net, dude), LVIEW gives you the capability to modify the files with drawing commands.

e. WHAM (Waveform Hold and Modify): Software to play and manipulate audio files (e.g. .wav, .au, and .riff files).

1.2 Installation Roadmap

To accomplish this, you will do the following:

a. Create directories for the software on the C drive of your seminar computer.
b. Copy compressed software files to these directories
c. Uncompress the files
d. Run installation procedures to properly install the software
e. Start the software, check it out, and appropriate configuration settings.
f. Clean up unneeded files
g. Check for viruses

1.3 Who Should Use These Procedures

These procedures are not intended for someone who has never used Microsoft Windows before. They are targeted to the user who is familiar with Windows, especially with File Manager operations. If you are not that person, you should seek semi-professional assistance (e.g. your seminar tech rep or another student more familiar with windows) in running these procedures.

1.4 Problems?

If you encounter a problem please see, e-mail, or call one of the following:

Maj Dan Joyce	Seminar 38 (Room 166)	Home: 260-7933
Maj Gary Brand	Seminar 37 (Room 164)	Home 260-7935
Maj Teri Netter	Seminar 29 (Room 272)	Home 409-9224

2 Log on to Seminar Computer and Create Directories

Log on the seminar computer using your seminar account (e.g. Sem40@Ops4Even@acsc) and password or your own account and password. (Your choice, you should feel empowered at this point).

Create the following directories on the C drive as indicated in the table below. Check off each item as you complete it. To create directories, open file manager (double click on file manager), Select "File" on the menu bar, and select "Create Directory" on the menu.

When the Create Directory window comes up, create the directories indicated in the checklist below by entering the values in the "Create Directory" column of the checklist below in the "Name" field and pressing the OK button.

Checklist 2-1: Create Directories

Done	Step	Create Directory	Purpose
	1	C:\INCOMING	A staging area for copying files off of the Internet. This keeps all your downloaded files in one place
	2	C:\VIEWERS\LVIEW	Directory for LVIEW software
	3	C:\VIEWERS\WHAM	Directory for WHAM software
	4	C:\PKUNZIP	Directory for PKUNZIP Compression/Decompression software
	5	C:\NET-TEMP	Staging directory for Netscape software
	6	C:\TEMP	Temporary directory required by Netscape. If this directory already exists, skip this step

3 Copy Software

Copy the software provided to each of the Internet Group Commanders on floppy disk to the directories on the C: drive on the seminar computer indicated in the checklist below.

If you still need the software, see Maj Dan Joyce (seminar 38, room 166) or send him some E-mail.

Checklist 3-1: Copy Software to Your Computer

Done	Step	File	Copy it To
	1	NS16-100.EXE	C:\NET-TEMP
	2	PKZ204G.EXE	C:\PKUNZIP
	3	LVIEWP1A.ZIP	C:\VIEWERS \ LVIEW
	4	WHAM131.ZIP	C:\VIEWERS \ WHAM

4 Install PKUNZIP

This section will take you through installing PKUNZIP. PKUNZIP is software that uncompresses (or unzips) other compressed files.

Checklist 4-1: Uncompress and Install PKUNZIP

Done	Step	Action
	1	Change to C:\PKUNZIP Directory
	2	Double Click on PKZ204G.EXE
	3	Watch PKUNZIP create other files as it unzips itself
	4	Press function key F5 to refresh the window
	12	The installation is complete.

5 Uncompress and Install NETSCAPE

Netscape is a World Wide Web browsing tool.

Checklist 5-1: Uncompress and Install Netscape

Done	Step	Action
	1	Change directories to C:\NET-TEMP
	2	Double-click on NS16-100.EXE
	3	Watch Netscape uncompress itself
	4	Press F5 to refresh the window (showing new files)
	5	Double click on SETUP.EXE
	6	Window will come up with Netscape Setup - Welcome (after about 30 seconds)
	7	Click on the Continue button
	8	On the Installation location window, ensure the location is set to: C:\ NETSCAPE If you have Netscape installed, we recommend installing it again. You may have an old or corrupted version of Netscape
	9	In the Program Group selection window, leave it as Netscape, click on Continue
	10	On the Netscape Setup "Installation is complete" window, click on Yes to read the README file
	11	Read the file, using the scroll bar or <Page Down> key to move through the file
	12	When done, click on File, Exit on the upper left menu bar of the Notepad to exit
	13	Netscape is now installed. You now have a Netscape Program Group with the Netscape icon (blue capital N) and the Netscape readme icon in

		the group.
	14	Find the Netscape program group and double click on the Netscape icon to start Netscape
	15	Read the license agreement (if you are bored) then press ACCEPT
	16	Netscape should come up bring up the Netscape Welcome home page. If it didn't do so, make sure Super TCP is running (minimize Netscape and look for a minimized Super TCP Icon. If Super TCP is running, try to connect to another home page—sometimes you don't always connect on the first try. If Super TCP is not running, go to the Super TCP program group and start Super TCP, then return to step 14 of this checklist.
	17	Exit Netscape when you are done (File, Exit on the Netscape menu bar)

6 Uncompress and Install LVIEW

LVIEW is a software package that allows you to view and manipulate graphics files (e.g. put text on top of graphics, change colors in pictures, draw mustaches on photographs, etc.)

Checklist 6-1 Uncompress and Install LVIEW

Done	Step	Action
	1	Using File Manager, navigate to the PKZIP directory and select the PKUNZIP.EXE file
	2	Under the File menu in File Manger select "Run" (In the run dialog box you'll see that pkunzip.exe is highlighted)
	3	Press the "End" key on your keyboard; you should see the flashing cursor now positioned at the end of "pkunzip.exe"
	4	type C:\VIEWERS\LVEIW\LVIEWP1A.ZIP Note: you now see: PKUNZIP.EXE C:\VIEWERS\LVIEW\LVIEWP1A.ZIP in the RUN dialog box
	5	Press OK The screen will go black and then you'll see the WHAM files being extracted
	10	When you are returned to File Manager you are done.

Checklist 6-2 Create Program Group for Viewers and Sound

Done	Step	Action
	1	Click in the Program Manager Window in windows (make Program manager the active window)
	2	Select File on the menu bar, then New
	3	New Program Object window comes up. Select Program Group, then press OK
	4	Program Group Properties window comes up
	5	Enter "Viewers and Sound" in the Description field. Leave the Group file field blank. Press OK
	6	The new Program Group should be displayed (with no icons in it). You can minimize or close this window.

Checklist 6-3 Create Program Item (Icon) for LVIEW

Done	Step	Action
	1	Click in the "Viewers and Sound" Program Group window (make the "Viewers and Sound" window active). If you don't have a "Viewers and Sound" program Group, execute Checklist 6-2 before continuing.
	2	Select File on the menu bar, then New
	3	New Program Object window comes up. Select Program Item, then press OK
	4	Program Item Properties window comes up
	5	Click in the Command Line entry field (flashing vertical line should be displayed in the left side of the box).
	6	Press Browse
	7	Set the directory to C:\VIEWERS\LVIEW and select LVIEWP1A.EXE
	8	Press OK on the Browse window
	9	Back in the Program Properties window, Press OK (the description and Icon will be filled in automatically)
	10	The LVIEW icon should be displayed in the "Viewers and Sound" program group window
	11	Double-click on the LVIEW icon. LVIEW should come up
	12	Select File and then Exit to quit LVIEW
	13	Close Viewers and Sound Program Group

7 Uncompress and Install WHAM

WHAM is an audio player.

Checklist 7-1 Uncompress and Install WHAM

Done	Step	Action
	1	Using File Manager, navigate to the PKZIP directory and select the PKUNZIP.EXE file
	2	Under the File menu in File Manger select "Run" (In the run dialog box you'll see that pkunzip.exe is highlighted)
	3	Press the "End" key on your keyboard; you should see the flashing cursor now positioned at the end of "pkunzip.exe"
	4	type C:\VIEWERS\WHAM\WHAM131.ZIP Note: you now see: PKUNZIP.EXE C:\ VIEWERS\WHAM\WHAM131.ZIP in the RUN dialog box
	5	Press OK The screen will go black and then you'll see the WHAM files being extracted
	10	When you are returned to File Manager you are done.

Checklist 7-2 Create Program Item (Icon) for WHAM

Done	Step	Action
	1	Click in the "Viewers and Sound" Program Group window (make the "Viewers and Sound" window active). If you don't have a "Viewers and Sound" program Group, execute Checklist 6-2 before continuing.
	2	Select File on the menu bar, then New
	3	New Program Object window comes up. Select Program Item, then press OK
	4	Program Item Properties window comes up
	5	Click in the Command Line entry field (flashing vertical line should be displayed in the box).
	6	Press Browse
	7	Set the directory to C:\VIEWERS\WHAM and select WHAM.EXE
	8	Press OK on the Browse window
	9	Back in the Program Properties window, Press OK (the description and Icon will be filled in automatically)
	10	The WHAM icon should be displayed in the "Viewers and Sound" program group window
	11	Double-click on the WHAM icon. WHAM should come up
	12	Select File and then Exit to quit WHAM
	13	Close Viewers and Sound Program Group

8 This section has been deleted

9 Clean up Directories

Now that you are done with installation, you should clean up directories and eliminate unneeded files. Go to File Manger, select the files/directories indicated below, and select File on menu bar, then delete.

Done	Step	Action
	1	Delete C:\NET-TEMP directory and **ALL** contents. Everything you need has been installed to the C:\NETSCAPE directory
	2	Delete LVIEWP1A.ZIP in the C:\VIEWERS\LVIEW\ You no longer need the compressed software
	3	Delete WHAM131.ZIP in the C:\VIEWERS\WHAM\ You no longer need the compressed software
	4	Delete PKZ204G.EXE in the C:\PKUNZIP directory. You no longer need this file now that PKUNZIP.EXE has been unzipped.

10 Reboot and Check for Viruses

Last, but most importantly, restart the system and ensure you haven't introduced any viruses.

Checklist 10-1: Reboot and Virus Check

Done	Step	Action
	1	Exit Windows
	2	At the C: prompt, type LOGOUT to log out of the network
	3	Turn the power off
	4	Wait a few seconds (count five Mississippi)
	5	Turn the power on
	6	The computer should go through a virus check on memory on boot up. If any virus checks come up positive, write the information down, shut the computer off (power off), and alert DST IMMEDIATELY
	7	Log in to the network
	8	Windows should come up. If it doesn't type WIN at the C: prompt and press return.
	9	Open the Applications Program Group and double click on IBM Anti Virus. If you **don t** have an icon for this, then: a. Open File Manager and go to the C:\UTILS\IBMAV directory b. Double click on IBMAVW.EXE to start the Anti-virus software
	10	Press button to start Virus checks
	11	Wait while virus check is done.
	12	If any viruses are found, write down the information, leave the computer running, and contact DST IMMEDIATELY
	13	If no viruses are found, select Check on the Virus check menu bar and then Exit

11 Set Netscape Preferences and Bookmarks

Checklist 11-1 Set Netscape Preferences

Done	Step	Action
	1	Start Netscape (double click on Netscape in Netscape program group)
	2	Select Options, then Preferences on the Netscape menu bar
	3	Click on the down arrow button on the entry at the top of the window to bring up a list of preferences.
	4	Select Directories, Applications, and News from the list
	4a	In Directory and File locations, make the following settings: Temporary Directory: C:\TEMP Bookmark File C:\NETSCAPE\BOOKMARK.HTM
	4b	In News make the following settings News (NNTP) Server ra.nrl.navy.mil
	5	Click on the down arrow button on the entry at the top of the window to bring up a list of preferences
	6	Click on Helper Applications
	7	Scroll down the list under "mime Type" until audio/x-wav is in the window
	8	Click on the audio/x-wav line
	8a	Press the Browse button near the bottom of the screen
	8b	Set the directory to C:\VIEWERS\WHAM and select WHAM.EXE
	8c	Press OK
	9	WHAM should now replace the ????? in the action field for these files. Now when you download a .WAV file, Netscape will start up WHAM for you to play the sound.
	10	Scroll down the list under "mime Type" until audio/x-aiff is in the window
	11	Click on the audio/x-aiff line
	12	Repeat steps 8a - 8c
	13	WHAM should now replace the ????? in the action field for these files. Now when you download an .aif, .aiff, .aifc file, Netscape will start up WHAM for you to play the sound.
	14	Scroll down the list under "mime Type" until audio/basic is in the window
	15	Click on the audio/basic line
	16	Repeat steps 8a - 8c
	17	WHAM should now replace the ????? in the action field for these files. Now when you download an ..au or .snd file, Netscape will start up WHAM for you to play the sound.
	18	Press OK at the bottom of the Preferences window

Checklist 11-2 Import Bookmarks

Done	Step	Action
	1	Select Bookmarks on the Netscape Menu bar, then View Bookmarks
	2	Bookmark List window comes up with a bookmark list (probably empty)
		Press Edit button on bottom right of window
		Window expands to a full window
		Press Import Bookmarks button in upper right corner of screen
		Import File As Bookmarks Window comes up
		Set the disk to the A: drive and select the bookmark file (ending in .HTM, probably BOOKMARK.HTM). Should be the same disk the Netscape Software was on.
		Press OK
		bookmarks are imported and added to your bookmark list

Appendix F: Hong Kong Campaign Scenario

Disclaimer: This scenario described below is **FICTITIOUS** and developed for instructional purposes only. They do not reflect the official position of any of the governments discussed below, or any of their agencies.

1. Student Objective:

Students in seminars 8, 9, 10, 18, 25, 31, 32, 34 will use Internet to find the information necessary to develop a non-traditional campaign to achieve the UN General Assembly/Coalition's objectives with respect to the People's Republic of China's (PRC) abrogation of the treaty on returning Hong Kong to PRC sovereignty.

2. Assumptions

a. Faculty instructors for the eight seminars will encourage students to "think outside the lines" in using Internet as an information tool and to wield Internet as an instrument of power.

b. The PRC military/political/economic information infrastructure have merged, like they have in this country (i.e. we no longer think of a commercial net and a military net—it is all "the Internet). Targeting one will affect all.

c. We are at **pre-hostilities** stage, negotiations continuing, but going nowhere.

e. The Internet research team will not discuss any security issues. As an education exercise retrieving unclassified information in the public domain, we will remain at the unclassified level.

3. The Scenario

a. In 1984, The People's Republic of China (PRC) and the United Kingdom (UK) signed a joint declaration that will transfer control of Hong Kong back to the PRC on 1 Jul 1997. See the attached summary of the joint declaration. The PRC has said they will have "One China, two systems." with respect to the incorporation of Hong Kong back into the PRC political and economic system.

b. In 1995, US and PRC trade relations strain. The US increases tariffs on PRC goods, PRC retaliates and raises tariffs on US goods.

c. Deng Ziao-Ping dies in December 1995 and a new, more conservative faction comes to power in the PRC. This new faction is led by Chou-li Ziang and it begins to reassert Confucian/Communist orthodoxy. Ziang publicly denounces previous PRC leaders who have sought to "westernize" PRC's trade and economic policies.

d. In February 1996, Chou-li Ziang questions the fairness of the UK-PRC joint declaration, which, according to Ziang, "tramples on the sovereignty rights of the PRC by forcing the PRC to maintain an economic colony of the UK for 50 years after sovereignty over Hong Kong is returned to the PRC." He calls the treaty a "ratification of economic colonialism by the UK and the West." and asks the UK to reopen negotiations to resolve the PRC's issues.

e. The Prime Minister of the UK says the UK will not reopen negotiations and expects the PRC to honor and implement the declaration in its entirety.

f. The PRC cancels the meeting of the Sino-British Joint Liaison Group (the group that is tasked to work out the details of the transfer of Hong Kong) that was scheduled to meet in June 1996 in Hong Kong. The PRC states it will not send another representative to the Joint Liaison Group until the UK reopens negotiations.

g. New PRC leadership says some terms of treaty no longer apply, but the part in which title to Hong Kong passes to PRC does

h. June 1996 - December 1996: Trade tensions continue, PRC economy in recession. Chou-li Ziang and his faction blame PRC economic troubles the groups in China that have been going too far too fast on converting PRC to a free market economy.

i. March 1996: : PRC nationalizes foreign assets in PRC and plans to do same thing in Hong Kong on 1 July 1997. Multinational corporations object and start to apply pressure to government leaders in US, UK, Japan, South Korea, and Germany to influence PRC to stop their economic actions.

j. April 1996: Congress passes legislation revoking Most Favored Nation (MFN) trading status for the PRC. Mutual PRC/US tariffs remain high. UK and Germany take diplomatic steps to have PRC reverse their nationalization of foreign assets. Negotiations on nationalization are ongoing but do not promise success in the near term.

k. Dealing with China is a major theme of the US 1996 presidential election, won by Republican Bob Dole in November 1996.

l. PRC continues to modernize its armed forces and their Weapons of Mass Destruction (WMD) (primarily nuclear weapons) program continue apace

m. January 1997: President Dole, in his inaugural address, pledges to work with the Congress and our allies to protect "vital US national and economic interests in Pacific Rim."

n. January - March 1997: Dole administration builds a diplomatic coalition of interested states to resist China's "economic warfare." These states include UK, Germany, Japan, South Korea, and Canada.

o. April 1997: US introduces resolution 956 in UN General Assembly calling on PRC to fully implement the PRC/UK treaty. Resolution passes General Assembly with 65% majority. Resolution 956 says:

(1) PRC will fully implement the PRC-UK Joint Declaration on Hong Kong

(2) If PRC does not take steps to implement treaty by 1 May 1997, economic sanctions against PRC will be instituted and UK administration over Hong Kong will continue under UN protection.

(3) UN forces will be sent to Hong Kong on 1 June 1997 if PRC does not signal its willingness to implement the Joint Declaration.

p. 15 April 1997: US brings the issue of PRC compliance with the PRC-UK Joint Declaration on Hong Kong treaty to the UN Security Council. Security Council debates resolution 956. Article 52 of the UN charter prohibits parties in a dispute from voting on the matter in the security council so the PRC and UK abstain. The US, France, and Russia all vote in favor, as do six of the 10 non-permanent members of the security council. The resolution passes 9-4 with two abstentions. UN General Secretary asks U.S. to lead the UN Force to Hong Kong.

q. 16 April 1997: US and UK say they will form a coalition force to ensure the peace and stability of Hong Kong.

r. 1 May 1997: PRC and UK meet in an attempt to peacefully resolve the dispute. The PRC opening position is a restatement of what they have already said—Joint Declaration must be re-negotiated. PRC said they will move to seize all of Hong Kong by 1 July 1997

4. Student Tasking

a. It is 1 May 1997. Develop a non-traditional campaign (may not be "air campaign," may be an "information campaign") to achieve the UN Objectives:

(1) Peaceful resolution of the crisis
(2) Full implementation of the PRC-UK Joint Declaration on Hong Kong
(3) Minimize destruction of property / loss of life.

Summary of UK-PRC Joint Declaration on Hong Kong

On 19 Dec 1984, Prime Minister Margaret Thatcher of the United Kingdom of Great Britain and Northern Ireland (UK) and Prime Minister Zhao Ziyang of the People's Republic of China (PRC) signed the Joint Declaration of the Government of UK and the Government of PRC on the Question of Hong Kong. This declaration is over 8000 words in length. This summary is extracted from the cited reference.[10]

1. After 1 July 1997, Hong Kong will become a Special Administrative Region of the PRC under Article 31 of the PRC Constitution. It will enjoy a "high degree of autonomy" except in foreign and defense affairs.

2. Hong Kong will be vested with executive, legislative, and independent judicial power, including that of final adjudication.

3. Hong Kong's chief executive will be appointed by the PRC after elections or consultation in Hong Kong. The government of Hong Kong will be composed of local people.

4. Hong Kong shall maintain the capitalist economic and trade system for 50 years after 1997 (until 30 June 2047).

5. The existing social and economic system will remain unchanged. Freedom of speech, movement, the press, assembly, strike, and religion and other freedoms will be protected by law. Similarly, private property rights will be protected.

6. Apart from displaying the national flag and national emblem of the PRC, Hong Kong may use a regional flag and emblem of its own.

7. Hong Kong may participate in relevant international organizations and international trade agreements. It may establish official and semiofficial economic and trade missions in foreign countries, using the name "Hong Kong, China" to maintain and develop relations and conclude and implement agreements with states, regions, and relevant international organizations in appropriate fields.

8. The PRC defense force stationed in Hong Kong shall not interfere in the internal affairs in Hong Kong and the expenditures for these military forces shall be borne by the PRC's Central People's Government.

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[10] Chiu, Hungdah, and others, eds., *The Future of Hong Kong: Toward 1997 and Beyond*, (Westport, CT: Quorum Books, 1987), 10, 181-195

9. During the transition period (1984 - 30 Jun 1997) the UK will be responsible for the administration of Hong Kong and the PRC will cooperate with the UK in this administration

Appendix G: Notional Information Solution for Hong Kong AOR Analysis

This notional information provides an example of the information sites available to support an AOR analysis of Hong Kong. The structure of this information solution is patterned after the Air Command and Staff College (ACSC) Air Campaign Process Model

1. Contextual Elements (General)

(1) Abstract: CIA Factbook: - People's Republic of China, provides overview of China, covering many contextual elements.
URL: http://www.ic.gov/94fact/country/51.html

(2) Abstract: CIA Factbook: - Hong Kong, provides overview of Hong Kong, covering many contextual elements.
URL: http://www.ic.gov/94fact/country/108.html

(3) Abstract: City.Net home page on China.
URL: http://www.city.net/countries/china/

(4) Abstract: City.Net Hong Kong
URL: http://www.city.net/countries/hong_kong/"

(5) Abstract: CERN/ANU - Asian Studies WWW
URL: http://coombs.anu.edu.au/WWWVL-AsianStudies.html

1a. Political

(1) Abstract: Country Reports on Economic Policy and Trade Practices (One on China, one on Hong Kong). Courtesy UM-St Louis
URL: gopher://umslvma.umsl.edu:70/11/library/subjects/business/intmktg/crpt

(2) Abstract: Basic Law of the Hong Kong Special Administrative Region of the People's Republic of China
URL: http://wiretap.spies.com/ftp.items/Gov/World/hongkong.con

(3) Abstract: Constitution of the PRC
URL: http://wiretap.spies.com/ftp.items/Gov/World/china.con

(4) Abstract: Hong Kong Bill of Rights Ordinance, 1991
URL: http://wiretap.spies.com/ftp.items/Gov/World/rights91.hk

(5) Abstract: Chinese Declaration of Human Rights, 1979
URL: http://wiretap.spies.com/ftp.items/Gov/World/rights92.prc

(6) Abstract: PK - China - Regional information, contains include information on provinces, cites in the province, population, area, universities, administrative region schematic maps, and more.
URL: http://ftp.geog.ucl.ac.be/~patrick/regions/chine/Ecnregions.html

(7) Abstract: China Human Rights Practices 1994
URL: gopher://dosfan.lib.uic.edu:70/OF-1%3A8932%3AChina

1b. International

(1) Abstract: U.S. State Department Travel Warnings, top level listing
URL: http://www.stolaf.edu/network/travel-advisories.html

(2) Abstract: State Dept. Travel Warning: China
URL: gopher://gopher.stolaf.edu:70/00/Internet%20Resources/ US-State-Department-Travel-Advisories/ Current-Advisories/china

(3) Abstract: State Dept. Travel Warning: Hong Kong
URL: gopher://gopher.stolaf.edu:70/00/Internet%20Resources/US-State-Department-Travel-Advisories/Current-Advisories/hong-kong

(4) Abstract: University Center for International Studies (UCIS) at U of North Carolina Chapel Hill Home Page. References and Information on current world crises including NGOs/IGOs involved.
URL: http://sunsite.unc.edu/ucis/

1c. Economics

(1) Abstract: Asia Pacific Chamber of Commerce - Basic Information
URL: http://oneworld.wa.com/apcc/apcc.html

(2) Abstract: List of industries in Hong Kong
URL: http://www.hk.super.net/~rlowe/bizhk/comp/industry.html

(3) Abstract: Trade Law Home Page. Provides information and search capability on numerous international trade treaties and organizations.
URL: http://ananse.irv.uit.no/trade_law/nav/trade.html

1d. Leadership

See CIA factbooks on Hong Kong and PRC, referenced above, also see entries on PRC Constitution and Bill of Rights

1e. Sociocultural

(1) Abstract: Education:Universities:Hong Kong
URL:http://akebono.stanford.edu/
yahoo/Education/Universities/Hong_Kong/

(2) Abstract: Other Universities of China
URL: http://www.pku.edu.cn/docs/otheruni.html

(3) Abstract: Usenet newsgroups on Hong Kong
URL: FTP//plaza.aarnet.edu.au/usenet/FAQs/soc.culture.hongkong
URL: FTP//plaza.aarnet.edu.au/usenet/FAQs/soc.culture.hongkong/
soc.culture.hongkong_FAQ,_Part_I_(General
URL: FTP//plaza.aarnet.edu.au/usenet/FAQs/soc.culture.hongkong/
soc.culture.hongkong_FAQ,_Part_II_(E-Mail_Connections_in_HK)
URL: FTP//plaza.aarnet.edu.au/usenet/FAQs/soc.culture.hongkong/
soc.culture.hongkong_FAQ,_Part_III_(Global_Volunteer_Database)
URL: FTP//plaza.aarnet.edu.au/usenet/FAQs/soc.culture.hongkong/
soc.culture.hongkong_FAQ,_Part_IV_(Hong_Kong_Picture_Archive)

1f. Environment

(1) Abstract: Weather Information in region, including near-real time satellite weather shots.
URL: http://www.slip.net/Web/links/earth.html
URL: http://life.anu.edu.au/weather.html
URL: gopher://gopher.ncc.go.jp:70/11/INFO/weather/gms/pimage2-jpg

2. Operational Art

(1) Abstract: Real Time Support for the Warrior Home Page. Page that provides links for many Operational Art elements (maps, weather, latest news, etc.)
URL: http://www.ait.nrl.navy.mil/rts/warrior.html

2a. Logistics

No Findings

2b. Technology

(1) Abstract: Jane's All the World's Fighting Ships, Aircraft, etc.
URL: http://www.btg.com/janes/

(2) Abstract: Institute of High Energy Physics, Beijing. Information on PRC research, possible military applications
URL: http://utkvx1.utk.edu/~xurs/ihep.html

2c. Information

(1) Abstract: World-Wide Web Servers: Summary
URL: http://mouth.etri.re.kr/country.html

(2) Abstract: WWW Servers in Hong Kong
URL: http://www.cuhk.hk/hkwww.html

(3) Abstract: WWW servers in China
URL: http://www.ihep.ac.cn/china_www.html

(4) Abstract: Hong Kong WWW information from the CUI W3 Catalog
URL: http://www.hk.super.net/~rlowe/bizhk/hk.html

(5) Abstract: Finding News About China
URL: http://www.umich.edu:80/~milesj/

(6) Abstract: BizAsia: Asia/Pacific-Rim Business News!
URL: http://www.hk.super.net/~rlowe/bizasia/bachina.html

(7) Abstract: Voice of America
URL: gopher://gopher.voa.gov:70/1

(8) Abstract: Gopher—China. Gopher service of China News Digest. Provided by CND volunteers for researchers access to archives of CND publications and other information packages
URL: gopher://cnd.cnd.org:70/11/English-Menu

2d. Deception

No Findings (but this could be a deception. On the other hand, we could have found something but decided not to tell anyone, which could also be a deception.)

2e. Targeting Science

(1) Abstract: Maps of the Area - Xerox PARC Map Viewer: world
URL: http://pubweb.parc.xerox.com:80/map

(2) Abstract: Map of China, GIF graphics format
URL: http://www.lib.utexas.edu/Libs/PCL/Map_collection/middle_east_and_asia/China.GIF

(3) Abstract: Map of Hong Kong, JPG graphics format
URL: http://www.lib.utexas.edu/Libs/PCL/Map_collection/middle_east_and_asia/HongKongMacau.jpg

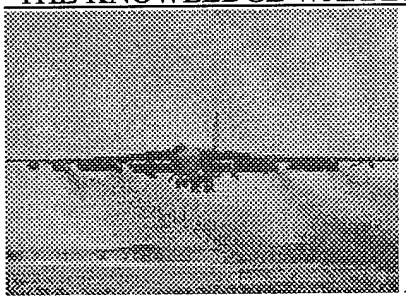
2f. Measuring Success

No Findings.

Appendix H: The Knowledge Warrior Home Page

ACSC Real Time Support for the Air Campaign Planner:

"THE KNOWLEDGE WARRIOR"



Air Command and Staff College Home Page

The University of the Air Campaign Planners for the Twenty-First Century

- Last Update: *March 21,1995*

- Professional military officers constructed this WWW page to serve as a source document for Air Campaign Planners. It was modeled after the Real Time Support for the Warrior page constructed by Frank Segaria, NRL, Rob King, and Daniel H. Wagner Associates, check out their home page. We thank them for their outstanding contribution and inspiration that led to the *Knowledge Warrior* home page. Information/Intelligence | Maps/Imagery | News | Political | Economics | Weapon Systems | Military History | Military Photos/Graphs | Climate/Weather | Disasters | WWW Servers | Internet Searching Engines | Online Publications| ACSC Communication Center | E-mail to the Authors|

Information/Intelligence

A. Central Intelligence Agency Server

- The World FactBook 1994
  The Factbook on Intelligence

B. IntelWeb

- Intelligence by Country

C. Journal of Electronic Defense

D. The Terrorist Profile Weekly

- Newsletter dedicated to the spread of information about terrorism.

E. Nuclear Information WWW Server

- Nuclear power plants, documents, and other information relating to nuclear energy.
- Information obtained from the Real Time Support for the Warrior

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Maps/Imagery

A. The Perry-Castaneda Library Map Collection

- Contains a collection of various maps(countries,cities,current events).

B. Xerox Map Viewer

- Generates a simple map of any scale at any location on the earth.

C. U.S. Geological Survey (Data Available Online)
D. GeoWeb

- Information obtained from the Real Time Support for the Warrior

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News

A. U.S. Information Service (USIS)

- Contains official statements and information transmitted electronically from U.S. Information Agency (USIA) in Washington D.C. to U.S. Information Service (USIS) posts abroad.

B. News Services
C. ClariNet Tearsheet: U.S and General News
D. Time Daily
E. London's The Electronic Telegraph
F. The Nando Times
G. News Services from NAVPALIB
1. Navy News Service
2. Navy Europe News Service
3. Marine Corps News

Political

A. U.S. State Department Travel Warnings and Consular Information Sheets
B. Thomas Legislative Information Service
C. United Nations and WWW for International Organizations

Economics

A. United States Government 1996 Federal Budget Links - an unofficial page of links to official 1996 United States Government budget information in *.pdf format with a link to Adobe"s Acrobat Reader to read the files. The links are to large size files needless to say.

- Information obtained from the Real Time Support for the Warrior

Weapon Systems

A. Jane's Electronic Infomation System
B. NISE EDGE

- Online collection of reports in text format and engineering drawings in .DWG format.
- Information obtained from the Real Time Support for the Warrior

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Military History

A. Military History Page

- Listing of military aircraft. Descriptions of the designation systems used for military aircraft and extensive list of acronyms and codenames.

B. **E-HAWK History Page** E-Hawk Electronic Headquarters for the Acquisition of War Knowledge. This Includes a complete catalog of U.S. DoD Internet sites, current events & announcements, **military history**, and military science.

Climate/Weather

I. Current Weather Maps

- IR, Visible, Composite, from Michigan State U. GOES-4, GOES-8, GMS-4, Meteosat, US, Europe, Africa, Antartica. US Surface Maps. Interactive Weather Browser. WX-MAP to go.

II. National Oceangraphic Data Center (NODC)

- Marine predictions.

III. Climate Prediction Center

- National Centers for Environmental Prediction (NCEP). Climate products and services consisting of operational prediction of climate variations, climate system monitoring, and data base developement for global and regional climate anomalies and trends.

IV. COADS Climate Data

- NOAA/PMEL Thermal Modeling and Analysis Project. Access to both live and climatological data. (Sea surface temperature, Sea-air temp difference, Air temperature, Sea level pressure, Surface wind speed, etc.)

V. WXP The Weather Processor

- Purdue University-Department of Earth and Atmospheric Sciences. General purpose weather visualization tool for current and archived meteorological data. Products derived from data obtained from the National Weather Service and the University of Wisconsin.

VI. National Weather Service Home Page
- Quick access to surface maps, satellite imagery, and text forecasts by state, country.

VII. Pilot Online: Weather from the Net
- Hampton, Va.

Disasters

I. Recent Seismic Activity
- Listing of recent seismic activity.

II. World-Wide Earthquake Locator

III. Recent Global Events
- Earthquake information from the National Earthquake Information Service. Information obtained from the Real Time Support for the Warrior

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WWW Server Indexes

I. NavyOnline
- A gateway to United States Department of the Navy online resources. Well organized by command.

II. DoD WWW Servers
- Summary organized agency. Lists include labs, service academies, major commands. Also contains links to government agencies.

III. DOD World-Wide Web Servers
- Summary not as extensive as previous two. (USAF maintained list)

IV. NATO World-Wide Web Servers
- (USAF maintained list)

V. U.S. Federal Government WWW Servers
- Summary organized by government agency. (FEDINFO).

VI. DefenseLink
- OSD Public Affairs: news releases, briefing transcripts, contract announcements, etc.

VII. Meteorology

VIII. Physical Geography Resources

IX. Yahoo - A Guide to WWW
- Hierarchical subject-oriented catalogue for the WWW and Internet. Primarily targeted the towards HTML documents, but other URL's are included when useful. Extensive search database by virtue of this service's longevity.

X. NTIS FedWorld

- Limited Web interaction beyond NTIS product advertisement/services... mostly ftp/telnet site lists, sorted by subject category

XI. U.S. Air Force World-Wide Web Servers
- (USAF maintained list)

XII. Earthquake Data
- Listing of connection for seismic information.

XIII. Military and Veterans Associations Sites
- This is another E-Hawk production. This site is under construction.

Military Photos

I. Great Military Images and Photos Provided by the E-Hawk Site.

Internet Searching Engines

I. Aliweb, Archie-Like Indexing
II. Archie Search, Gopher Index
III. ArchiePlex Info
IV. GNA Meta Library
V. Harvest Information Discovery and Access System
VI. Jughead-Gopher Search
VII. The Jump Station
VIII. Lycos WWW Search Tool
IX. Meta Index/Search Tools
X. NIKOS Gateway
XI. RBSE's URL Database
XII. CUI Search Engines
XIII. SUSI/CUSI
XIV. Veronica Info
XV. Veronica Query
XVI. Virtual Reference Desk, UC Irvine
XVII. W3 Search Engines
XVIII. WAIS Search Form
XIX. Web Crawler
XX. The World Wide Web Worm
XXI. WWPing Form Page
XXII. Internet Search Engines

Online Publications

I. *CADRE Air Chronicles*
II. US Army Area Handbooks
III. *The Art of War*, by Sun Tzu. HyperLink to the complete book.

ACSC's Communication Center
DisplayText cannot span more than one line!

Security Notice

- Your consent to monitoring

- The Air Command and Staff College dedicates this page to the development of the Air Campaign Planners of the future and the efforts of authors of the Real Time Support for the Warrior.

- The *Knowledge Warrior page* is continuously being updated and improved. We welcome your comments or suggestions
- Major Chuck Sutherland@acscsvr2.au.af.mil.
  CDR Homer Coffman@acscsvr2.au.af.mil.

|Return to the Top of the Page|

Appendix I: Internet Training Survey Form

ACSC Internet Training Survey

Please circle the number that best expresses your thoughts on the Internet training provided. Thank you :-)

1. How well did the training sessions contribute to your "Internet knowledge base?"

1	2	3	4	5
Limited value; provided no new information on the subject	Some value; provided a revision/refresher of my existing knowledge	Value added; facilitated and increased my basic capabilities	Increased my knowledge base; provided new insight of Internet capabilities	Significantly expanded my knowledge base; will facilitate future endeavors

2. To the best of your knowledge, the data presented during training was:

1	2	3	4	5
Inaccurate	Inconsistent	Correct	Extensive	Comprehensive

3. How well did the training demonstrate the value and importance of using Internet?

1	2	3	4	5
Offered no additional information to support premise	Only partially demonstrated value and importance of Internet	Premise supported by information and resources made available	Provided valuable demonstrations for immediate application	Provided new resources clearly supporting premise

4. How well was your previous knowledge of computers/networks integrated into this Internet training?

1	2	3	4	5
No connection made	Insufficient connection	Sufficient connection	Well integrated	Extremely well integrated

5. Internet lessons seemed to be:

1	2	3	4	5
Poorly planned; ill presented	Basic; not all objectives supported	Supported objectives	Logically planned and presented	Extremely well planned and presented

6. Technology and visual aids used to support the lessons were:

1	2	3	4	5
Lacking; failed to enhance presentation and classroom activities	Less than adequate; presentation materials awkwardly applied	Adequate; assisted in classroom activities and in meeting lesson objectives	Very effective; enhanced attainment of lesson objectives	Excellent; greatly enhanced lessons; created synergistic environment

7. What is your overall assessment of how beneficial this training has been.

1	2	3	4	5
Not beneficial; provided little/no support for my current or projected use	Somewhat beneficial; additional analysis and explanation required	Beneficial; explanation of Internet system enhanced learning and capabilities	Very beneficial; valuable information presented logically and professionally	Exceptional; comprehensive coverage of critical Internet capabilities for immediate use

Appendix J: Internet Training Survey Results

1. How well did the training sessions contribute to your "Internet knowledge base?"

3%	8%	21%	40%	28%
Limited value; provided no new information on the subject	Some value; provided a revision/refresher of my existing knowledge	Value added; facilitated and increased my basic capabilities	Increased my knowledge base; provided new insight of Internet capabilities	Significantly expanded my knowledge base; will facilitate future endeavors

2. To the best of your knowledge, the data presented during training was:

0%	2%	49%	33%	16%
Inaccurate	Inconsistent	Correct	Extensive	Comprehensive

3. How well did the training demonstrate the value and importance of using Internet?

0%	11%	31%	36%	22%
Offered no additional information to support premise	Only partially demonstrated value and importance of Internet	Premise supported by information and resources made available	Provided valuable demonstrations for immediate application	Provided new resources clearly supporting premise

4. How well was your previous knowledge of computers/networks integrated into this Internet training?

5%	14%	41%	32%	8%
No connection made	Insufficient connection	Sufficient connection	Well integrated	Extremely well integrated

5. Internet lessons seemed to be:

3%	7%	27%	41%	22%
Poorly planned; ill presented	Basic; not all objectives supported	Supported objectives	Logically planned and presented	Extremely well planned and presented

6. Technology and visual aids used to support the lessons were:

4%	11%	35%	34%	16%
Lacking; failed to enhance presentation and classroom activities	Less than adequate; presentation materials awkwardly applied	Adequate; assisted in classroom activities and in meeting lesson objectives	Very effective; enhanced attainment of lesson objectives	Excellent; greatly enhanced lessons; created synergistic environment

7. What is your overall assessment of how beneficial this training has been.

4%	13%	28%	39%	16%
Not beneficial; provided little/no support for my current or projected use	Somewhat beneficial; additional analysis and explanation required	Beneficial; explanation of Internet system enhanced learning and capabilities	Very beneficial; valuable information presented logically and professionally	Exceptional; comprehensive coverage of critical Internet capabilities for immediate use

Vita

Major Richard D. Carroll: Major Carroll graduated from the University of Alabama in 1980. An Electronic Warfare Officer, his previous assignments include Chief of B-52 Electronic Warfare Officers Training at Castle AFB, California, and 60th Bombardment Squadron Instructor Andersen AFB, Guam. Currently as an ACSC instructor.

[redacted]

Commander Homer J Coffman: CDR Coffman received his commission in the United States Navy through Officer Training School in 1979, after four years enlisted service with the United States Marine Corps. He has completed the following assignments: Engineer Officer on board USS LEADER (MSO 490) and USS OLDENDORF (DD 972), Assistant Combat Information Center Officer on board USS RICHMOND K. TURNER (CG 20), and Executive Officer on board USS UNDERWOOD (FFG 36). He has a Master's Degree in Management from the Naval Post Graduate School and Computer Information Resources Management from Webster's University, St. Louis. MO. CDR Coffman is a graduate of the Army's Command and General Staff College and is currently teaching at the Air Force Command Staff College.

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Major Robert B. Goss: Major Goss entered the Air Force in 1982 through the Officer Training School, Lackland Air Force Base, Texas. He was selected as one of the first and very few 1Lts to command a B-52 as an aircraft commander. As a MAJCOM directorate staff officer he developed B-52 and B-2 special operations and was responsible for testing experimental systems, preparing the operational plans for these assets and briefing the Commander of the Strategic Air Command. Later, he was the Chief of Air Combat Command's (ACC) B-52 Aircrew Training Devices (ATD) Branch where he directed and managed the largest ATD complex in ACC. In addition, as Chief of Academics for ACC's Advanced Instrument Flight Course (AIFC) he was responsible for curriculum and courseware development and the quality and accuracy of all 26 instrument courses being taught to 155 select instructors annually. Currently he is an Air Command and Staff College Academic Instructor at Maxwell AFB, Alabama. He was awarded a bachelors and masters of science degrees in aerospace engineering from Texas A&M University

Major Daniel O. Joyce.: Major Joyce received his commission in the United States Air Force through the Reserve Officer Training Corps in 1981. After an initial tour as a war plans analyst, he earned his Master's Degree in Computer Systems from the Air Force Institute of Technology at Wright-Patterson Air Force Base, Ohio in 1987. His most recent tour was with Headquarters North American Aerospace Defense Command at Peterson Air Force Base, Colorado. Following graduation from Air Command and Staff College in June, 1995, Maj Joyce will be the Chief, Operations Support Flight, Air Intelligence Agency Mission Support Squadron, Kelly Air Force Base, Texas.

Major Teri C. Netter: Major Netter received her commission in the United States Air Force through Officer Training School in 1981 after 13 years enlisted duty with the Air Force, and after earning her Bachelor's degree in Computer Science from the University of Texas in Austin. Her assignments included War Plans Systems Analyst and executive officer at Headquarters Strategic Air Command, Chief of the Data Systems Branch at Andrews AFB, MD and Commander, Detachment 2, 2045th Communications Group, Brandywine, Maryland. Her most recent assignments were with NATO at the Joint Central Army Group/Fourth Allied Tactical Air Forces War Headquarters and at Headquarters, Allied Air Forces Central Europe, both in Germany.

Major Charles D. Sutherland: Major Sutherland received his commission in the United States Air Force through Officer Training School in 1981, after six years and eight months enlisted service in the Air Force. He holds an Associate of Applied Science in Radio Communication Technology from the Community College of the Air Force and a Bachelor of Science in Occupational Education, with a double specialization in Electronics and Business Management, from Wayland Baptist University. He flew B-52s at Dyess AFB and Carswell AFB, Texas, before he became a Combat Crew Training School Instructor at Castle AFB, California. He flew as a B-52 Instructor Pilot while serving as the Chief of Academics at the SAC Instrument Flight School and later as Eighth Air Force's Chief of B-52 Aircrew Training. He has a Master's Degree in Military History from University of Alabama. He was a 1994 distinguished graduate from Air Command and Staff College. He is currently an ACSC Instructor teaching War Theory, the Air Campaign Process, and War Termination and has been selected to pursue a Ph.D. in Mass Communications beginning in the summer of 1996.

Major Deborah S. Van De Ven: Major Van De Ven received her commission in the United States Air Force through Officer Training School in 1981, after seven years of enlisted service. She completed five tours in her primary role as an information manager serving as executive officer, protocol officer and squadron section commander. She also completed three special duty assignments as an instructor: ROTC Professor of Aerospace Studies, Rensselaer Polytechnic Institute; RAF Exchange Officer, RAF College Cranwell and Academic Instructor School, Maxwell AFB. She has a bachelor's degree in Occupational Education and a master of arts in Management and Supervision. Maj Van De Ven completed Squadron Officer School by correspondence and in residence.